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(54) CATERPILLAR DRIVE PULLEY
(54) POULIE DE TRANSMISSION CHENILLE

(57) Abstract:

Persons skilled in the art know that there are driving pulleys for T -section endless bands with which adherence can be automatically obtained by laterally tightening the vertical part of the T between two parts of the pulley , such tightening being controlled by means of crowns or washers cut for the KEGRESSE Patent lodged in France on the 13 th day of June 1922 concerning a " Driving pulley for T -section endless bands ".

With pulleys of this sort the tightening obtained is proportioned to the driving effort , subject, however ,to adherence between the band and the pulley being constant .

The object of my present invention is to provide a new pulley of a type or pattern similar to the one described in the above-mentioned Patent but with tightening of the vertical part of the band's T is governed not only by the driving effort but also by the adherence ,such tightening varying in fact both proportionally to the driving effort and inversely proportionally to adherence ; in other words,when,due to extraneous bodies or road particles ,such as dust, sand,water,mud,snow etc. getting between the endless band and the pulley ,the coefficient of adherence will be increased or decreased ,the tightening on the vertical part of the endless band will be slackened or rendered tighter .

I obtain the said result by means of a special arrangement which is the characteristic feature of my invention and which consists in arranging the friction parts cut into inclined planes which bring the two half-pulleys closer to one another in such a way that these parts be influenced by the aforesaid

extraneous bodies or road particles which being free to reach the said parts will cause to be varied the coefficient of friction between the said parts and therefore the tightening effect obtained according to adherence .

In order to make my invention more clearly understood I have illustrated ,as examples,several embodiments thereof in and by drawings appended hereto and wherein :

Figure 1 is a semi-section and semi-elevation of a pulley designed according to my invention .

Figure 2 shows in the same manner a modification and Figure 3 yet another modification thereof.

In all the figures the same numerals denote the same parts .

1 is the driving shaft of the driving pulley over which runs the end-less band of which 3 denotes the central part (or vertical part of the T) submitted to variable tightening .

In the embodiment shown by figure 1 the effort is transmitted by shaft 1 to a sleeve 4 keyed thereon. Said sleeve drives a drum 5 on the diameter of which is secured a crown 6 carrying on one face cogs with inclined planes which fit on another similar part 7 fixed against the inside of the half-pulley 8,and the latter is connected by a resilient disk 9 with a secondary hub 10 mounted free on hub 4.

The second half-pulley 11 is rigidly secured on the secondary hub 10.

Apertures 12 and 13 are provided on the one hand in the rim of the half-pulley 8 and on the other hand on the rim of the driving drum 5 .

The purpose of the said apertures is to per-

mit the introduction between the inclined planes of parts 6 and 7 of extraneous bodies of dust, sand, water, mud, snow, etc.) the fine particles of which come into contact with the surfaces of the inclined planes, varying thereby the tightening of the endless band's vertical part 3.

In fact and as will be easily realised, of the vehicle travels on, say, a dry road, the caterpillar-pulley adherence is great and the tightening should be minimised.

In this case the inclined planes will remain inoperative, and their resistance to slipping being increased, the result will be a slackened tightening.

On the contrary, if the vehicle is running through water, the caterpillar-pulley contact is lubrified, whence decreased adherence between the said two parts, but, at the same time, water getting in through apertures 12 and 13, lubrifies the inclined planes thereby reducing friction between them and consequently making the clamping tighter.

It becomes apparent, therefore, that while permitting a tightening proportional to the driving effort since the crown with inclined planes 6 is rendered integral with the driving shaft; the pulley that is the subject matter of my invention provides at the same time a tightening inversely proportional to adherence.

In the modified embodiments shown by figure 2, on the driving shaft 1 is keyed the tub 4 on which are rigidly mounted on the one hand half-pulley 11 and on the other hand drum 5 on the circumference of which is mounted the crown with inclined planes 6; the corresponding crown with inclined planes 7 car-

ried ,by half-pulley 8 which in this case,is held and guided as hereinafter indicated:; In fact drum 5 and half-pulley 11 are connected by cross-ties 14 which pass through notches or recesses provided for this purpose in half-pulley 8 and so the latter can be moved closer to half-pulley 11 by being under the action ofthe inclined planes of parts 6 and 7,made to slide on the cross-ties and on the outer edge of drum 5 .

As in the embodiment shown by figure 1,apertures 12 and 13 are provided in the rim of half-pulley 8 and in the rim of drum 5 in order to permit admission between parts 6 and 7 of road particles or extraneous bodies that thus automatically maintain at the desired value the coefficient of friction between the inclined planes .

In the embodiment shown by figure 3 the action on the inclined planes is produced by the rims of the pulley only .

For this purpose rims 15 are independent from the conical driving cheeks 16 each of which is integral with a drum 17 ; said drums are soft-frictionally mounted on the rim of the driving drums 5 and 5' which are rigidly secured to hub 4 keyed on shaft 1.

Rims 15 are integral with the inclined planes 6 which operate on similar parts 7 carried by the conical cheeks 16 . The inner part of these cheeks carries a set of driving teeth which engage between the cross-ties 14 that connect the two driving drums 5 and 5'.

Between the inclined planes 6 secured to rims 15 and the outer cheek of drums 5 and 5' are arranged thrust washers 18 made of any suitable material .

Working is as follows: as soon as there is a tendency to slipping, rims 15 on which rests the endless band and consequently the inclined planes 6 integral with the said rims are late in respect of the inclined planes 7 secured to the conical driving cheeks 16, thereby producing the required tightening. Road particles (various extraneous bodies) getting in also, as in the preceding cases, through appropriate apertures on the friction parts (inclined planes 6 and 7 and thrust washers 18) the tightening obtained is obviously inversely proportional to adherence.

I wish it to be clearly understood that the above-described embodiments are given merely as examples and that I reserve the right of making all and any constructional modifications without being deemed to depart from the scope of my invention.

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

1.

A driving pulley for T section endless bands comprising two half-pulley sections, a crown adjacent one of said sections, cogs within inclined faces carried by said section and crown, the inclined faces of the cogs on the section engaging the inclined faces of the cogs on the crown, said section and crown having apertures near the cogs to permit free admission between said inclined faces of extraneous bodies or road particles in order to vary the coefficient of friction between such parts according to the nature of the ground travelled over.

2.

A pulley as claimed in claim 1 having an automatic tightening device arranged at the periphery of the pulley.

3.

In a pulley according to claim 1, a flexible connection between said section and the hub on which the pulley is mounted.

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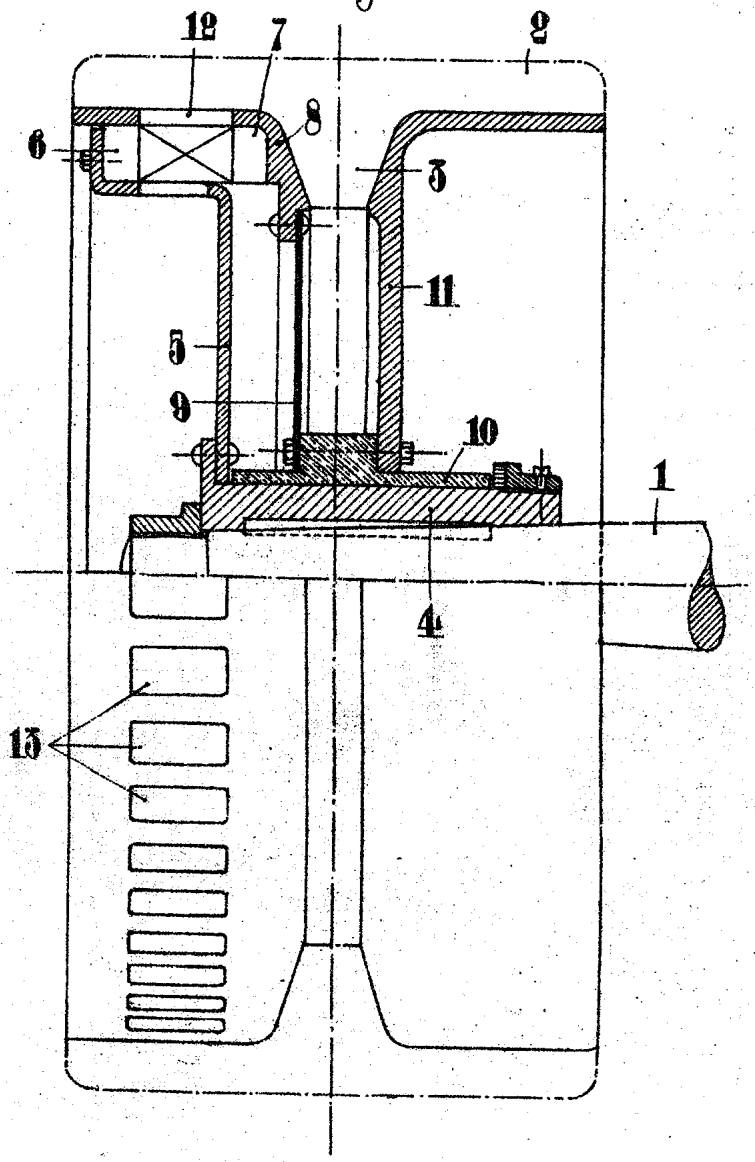
Fig.1



Witnesses of

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

Montreal, DEC 30 1974

Attorneys

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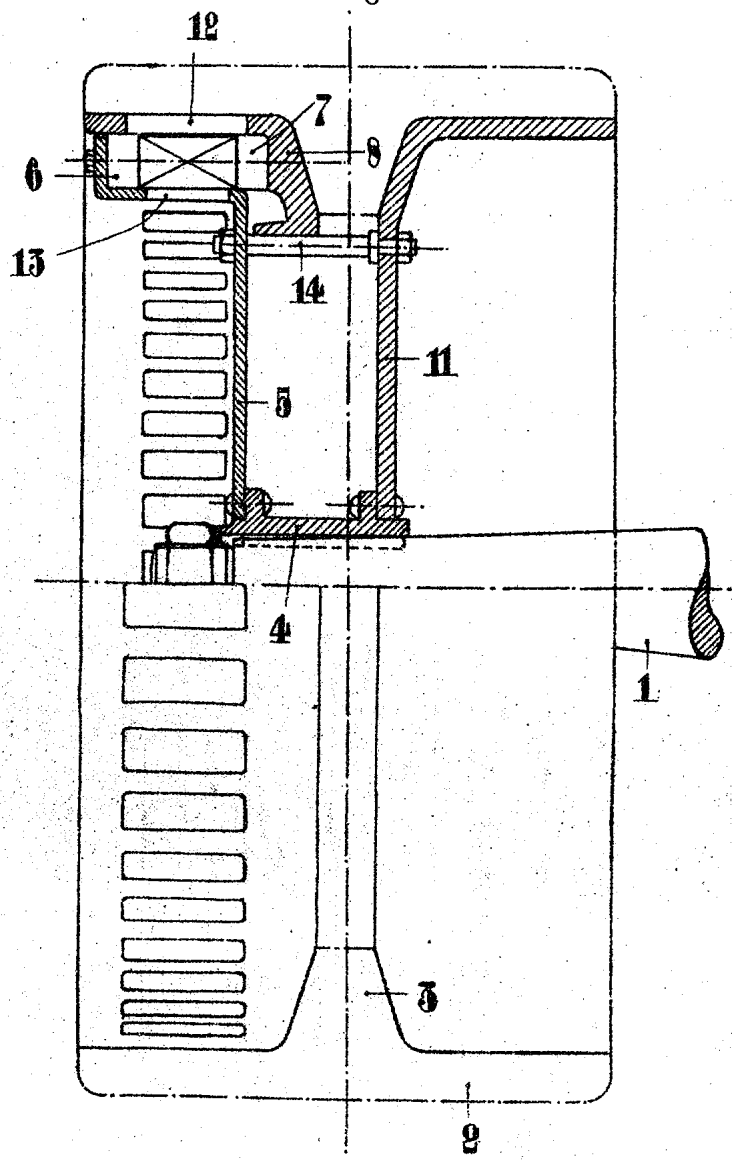
Fig. 2



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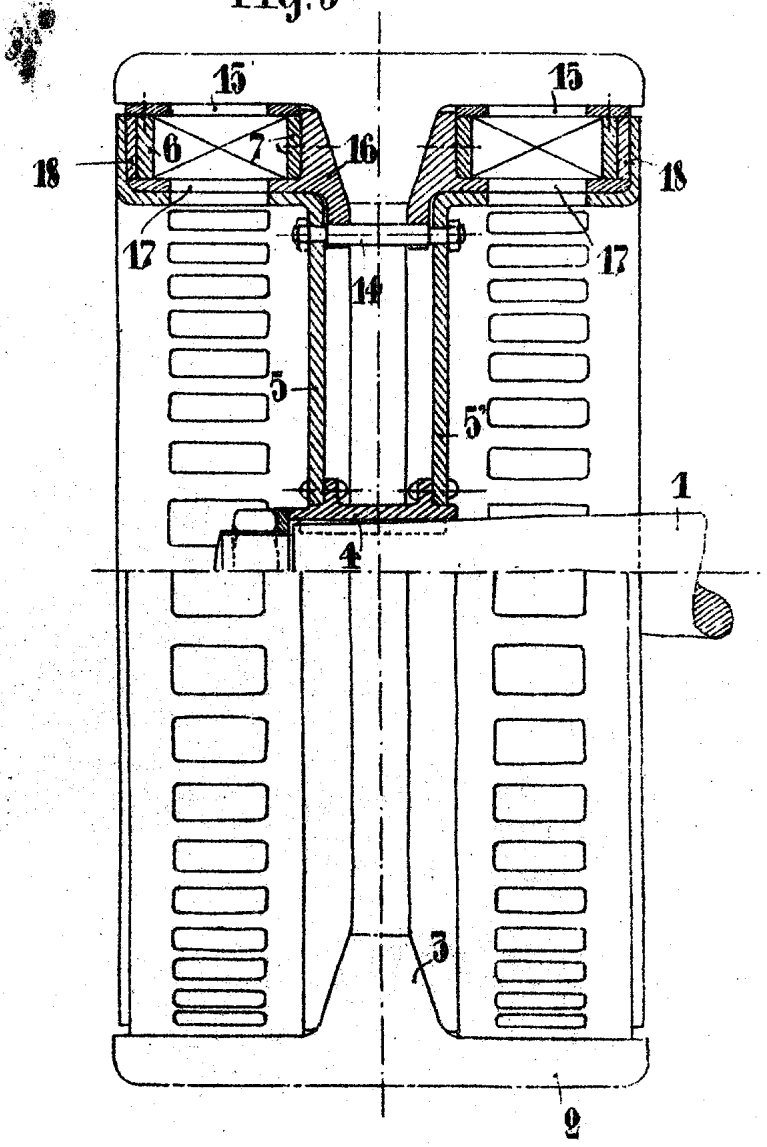
Certified to be the drawing referred to in the specification hereunto annexed.

Montreal, DEC 30 1924

Fig. 3



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

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