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(11) **CA 244305** (13) **A**

(40) **11.11.1924**

(12)

(21) Application number: **244305D**

(51) Int. Cl:

(22) Date of filing: ..

(71) Applicant: **KEGRESSE ADOLPHE.**

(72) Inventor: **KEGRESSE ADOLPHE ().**

(54) **DRIVING PULLEY FOR ENDLESS VEHICLE BANDS**

(54) **POULIE DE COMMANDE DE BANDE SANS FIN DE
VEHICULE**

(57) **Abstract:**

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In endless track motor vehicles, the required adherence of the flexible endless track to the driving wheels is produced either by mere tension or by means of a hub designed for the purpose and whereby the two halves ^{or} /rims forming the driving wheel are pressed by the driving power against the sides of the projection or inner rib of the T-section endless track or band. The vehicle being adapted to travel over any kind of ground, the coefficient of adherence of the endless track or band on the driving wheel varies within wide limits according to the nature of the surface over which the said vehicle moves. In thawing snow or mud for instance, the coefficient of adherence is much lower than when travelling in sand. Consequently, the grip on the endless band should be altered accordingly. In other words it should be tighter on greasy and slippery ground than when the latter is dry or sandy.

This invention relates to a wheel which automatically grips the endless band to the required extent whatever the nature of the ground over which the vehicle is travelling.

A wheel according to the invention is illustrated by way of example in the accompanying drawings, in which-

Figure 1 is a transverse section of the wheel,

Figure 2 is a transverse section of a modified construction,

Figure 3 shows one half of the wheel in side elevation.

An axially movable hub 2 is an easy running fit on the driving shaft or axle 1 (Figure 1) which

rotates the said hub through loosely mounted keys 3, so that the hub is adapted to move axially within limits on the axle, to which one half 4 of the wheel is rigidly secured. The hub 2 carries the other half 5, the rim of which is of smaller diameter and is narrower than that of the half 4. The outer end of the shaft 1 has suitable teeth 6 and is adapted to rotate a disc 7 one of the faces of which is provided with inclined thrust surfaces, the other face being flat and bearing against a nut member 8 secured to the shaft 1. The thrust surfaces of the disc 7 are in contact with correspondingly shaped faces of the disc 9 secured to the web 10 of the rim 11 loosely mounted on the half 5 of the wheel. The disc 9 and the web 10 are an easy fit on the hub 2 and merely bear against the flange 12 of the latter. The inner rib or central projection 13 of the endless band or track is an accurate fit between the two wheel halves 4 and 5. The flat portions 14 of the band rest on the half 4 and on the false rim 11.

The apparatus works as follows: When the two halves 4 and 5 of the wheel slip on the endless band owing to lack of adherence, they move through a certain angle relatively to the rim 11 since the latter is not driven by the shaft, but is in close contact with the endless band or track. The disc 7 rigidly secured to the driving shaft 1 is thus shifted relatively to the other disc 9 rigidly connected to the rim 11 through the web 10. It will be readily gathered that the relative shift of the two discs moves the wheel half 5 towards the half 4 and increases the grip of the wheel on the rib

13 of the flexible band.

Figure 2 illustrates a modified construction of the wheel. In this construction the shaft 1 drives the hub 2 through keys 3 which are an easy fit on the said hub. The latter can thus slide to a suitable extent on, and axially to the shaft 1. Two half wheels 4' are rigidly secured to the shaft 1 and the hub 2 by suitable webs. False rims 11', the shape of which follows that of the endless band 13, are loosely mounted on the wheel halves 4'. The false rims 11' are connected by two flexible webs 15 to a false hub made in two sections 16 and 17. A flange or projection on the section 16 loosely engages a recess formed on the shaft 1 by a rigidly screwed nut 18 and a collar or flange of the said shaft. The section 17 is internally screw-threaded and the inner end of the hub 2 has an external screw thread running in opposite direction to that of the section 17. An internally and externally screw-threaded annular nut or ring 19 is an easy fit on the hub 2 and the section 17. A stop 20 rigidly secured to the hub 2 and a flange or stop 21 integral with the section 17 limit the axial movements of the said ring or nut 19. The outer thread of the annular nut 19 being opposite to its inner thread, it will be gathered that owing to the stops 20 and 21, the final purpose of the nut or ring is to move the web of the nut 2 and that of the shaft 1 towards one another, whatever be the direction in which the false hub 16-17 is rotated relatively to the shaft 1 and the hub 2.

The device works as follows: the flexible endless track or band is driven through the false rims 11' located between the half wheels 4' and the said band 13, the

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drive being effected mainly by the lateral pressure exerted by the said wheel halves on the false rims 11'. The material to be placed between the half wheels 4' and the false rims 11' must be such as to yield in any case a coefficient of adherence lower than that of the track on the false rims, so that the slip is always between the halves 4' and the false rims 11'. This slip shifts the false hub 16-17 relatively to the shaft 1 and hub 2 through the flexible webs 15, so that the hub 2 is axially moved on the shaft 1 in consequence of the action of the annular nut 19. Owing to the stops 20 and 21, the final effect of the above-mentioned shift is to move the two wheel halves 4' towards one another whatever be the direction or rotation, for the purpose of gripping the inlet band 13 to the extent required by circumstances.

Obviously, the same results may be obtained by replacing the nut and screw arrangement by inclined thrust surfaces for instance; furthermore, one false rim only may be used, or any other suitable arrangement, without departing from the invention.

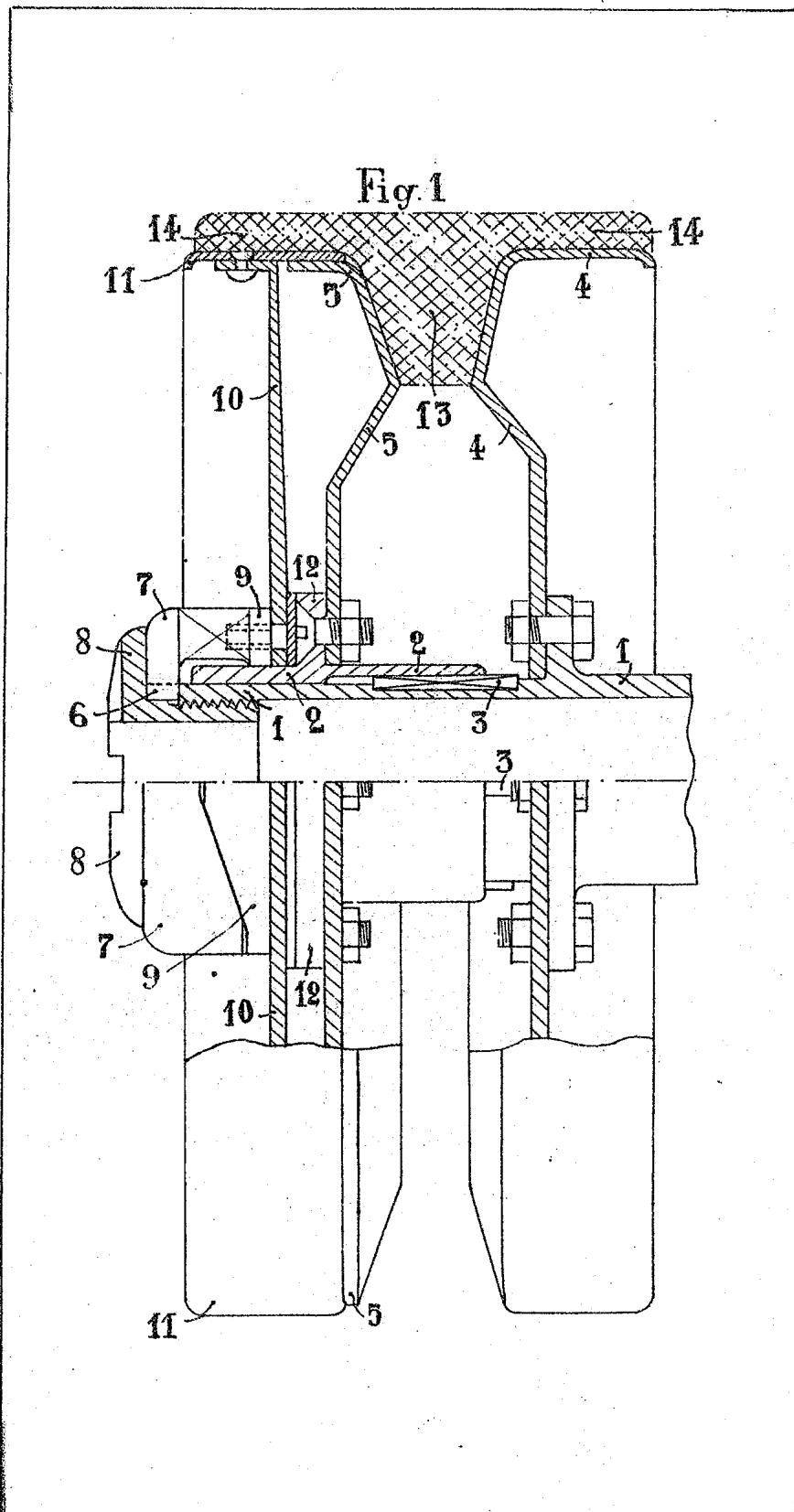
Having thus fully described the invention, what I claim as new and desire to protect by Letters Patent is:-

1.

A wheel for driving a flexible T-section endless band comprising a hub, a pair of true rims adapted to engage opposite sides of the band, a false rim, inter-engaging thrust members secured to the false rim and to the axle of the wheel, said members being adapted for displacement upon slipping between the false and true rims, whereby the latter are pressed against the rib of the band.

2.

A wheel for driving a flexible T-section endless band comprising a hub, a pair of true rims adapted to engage opposite sides of the band, a false rim, a member with an inclined surface attached to the false rim, a counterpart member attached to the hub, whereby displacement between said members resulting from incipient slipping between the true and false rims presses the rims against the rib of the band.



Inventor

Adolphe Regresse

By

Maxime J. Maxime

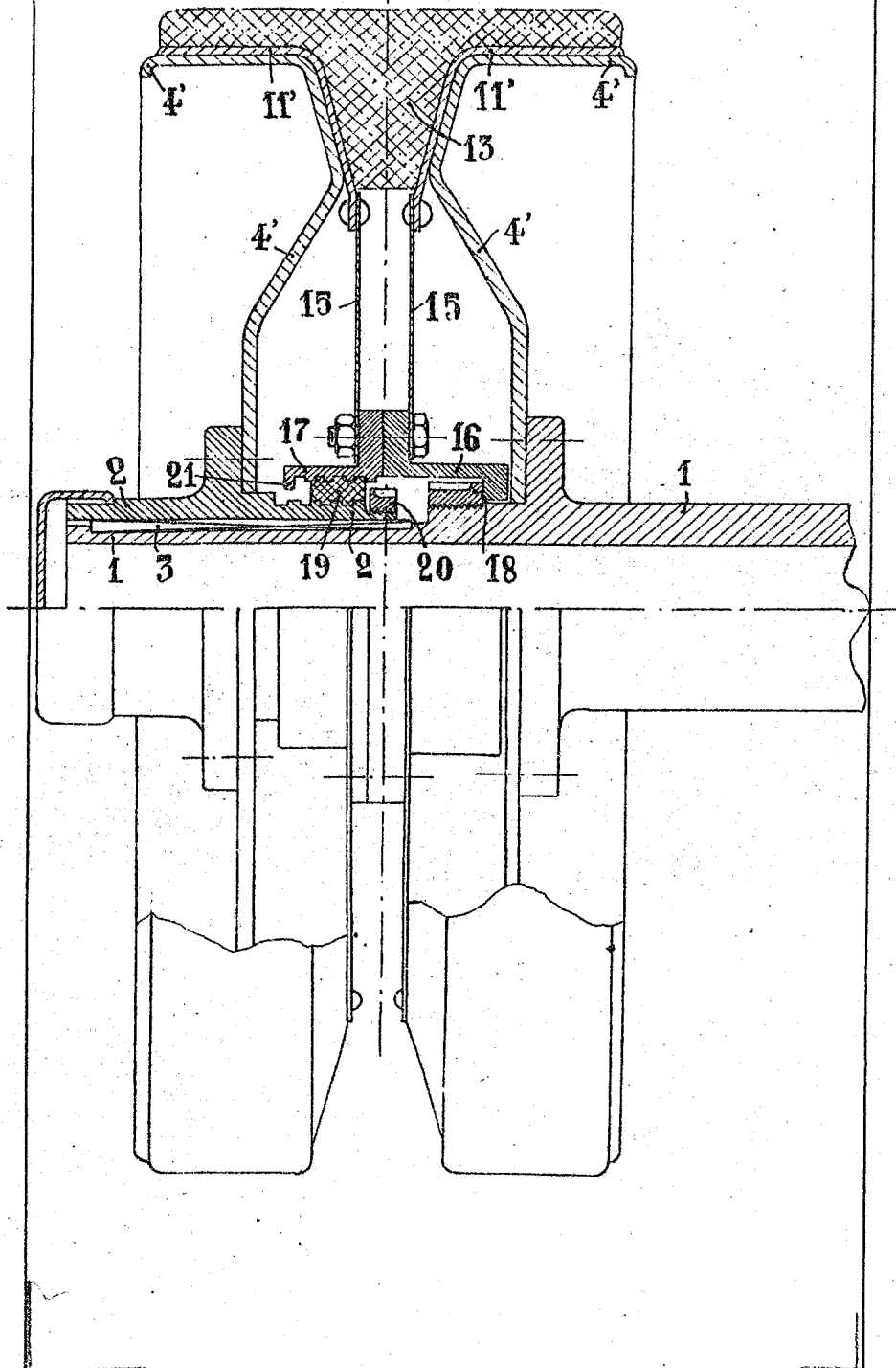
Attorneys

In presence of

S. W. Warren

Certified to be the drawing referred to
in the specification hereunto annexed.
Montreal, JUN 26 1923

Fig. 2



In presence of

S. Wareham

Certified to be the drawing referred to

A. Keresse in the specification hereunto annexed.

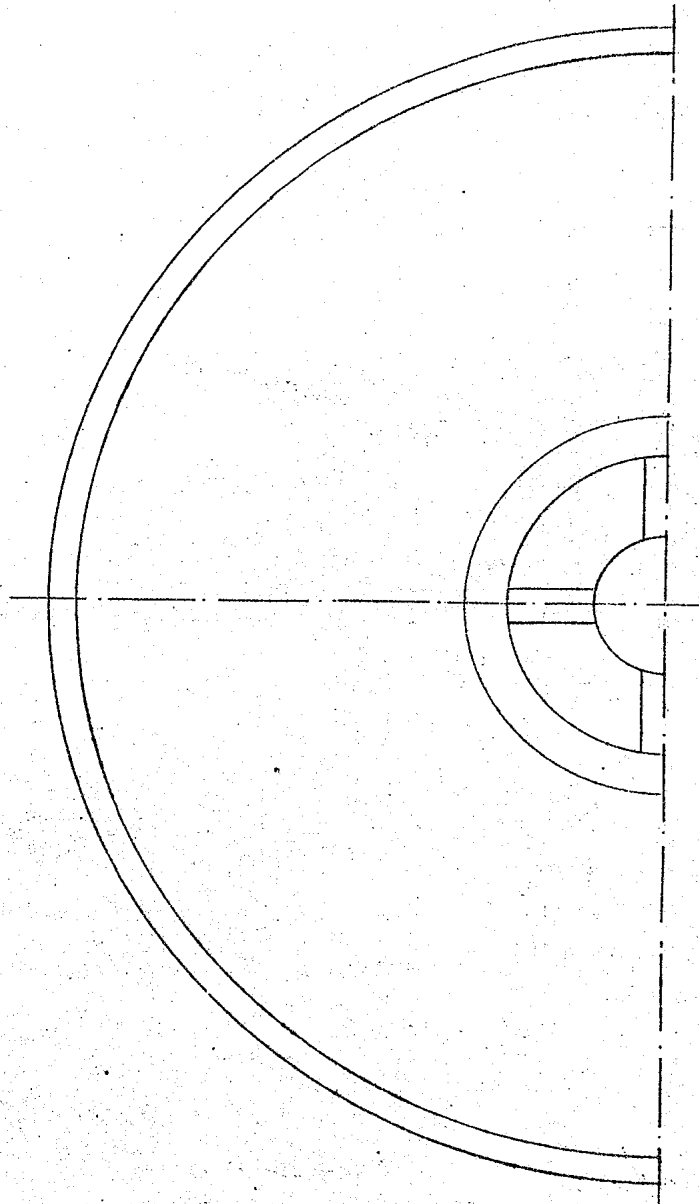
Montreal, JUN 26 1923

Inventor

*Adolphe Keresse**By Maxime J. Meisner*

Attorneys

Fig. 3



Inventor

In presence of

J. Warchan
A. Robin

Certified to be the drawing referred to
in the specification hereunto annexed.
Montreal, JUN 26 1923

Adolphe Kegresse

By
Maxime V. Maxime

Attorneys