

PATENT SPECIFICATION

Convention Date (France): May 29, 1934.

446,609

Application Date (in United Kingdom): May 16, 1935. No. 14388/35.

Complete Specification Accepted: May 4, 1936.



COMPLETE SPECIFICATION

Improvements in Endless Tracks for Vehicles

I, ADOLPHE KEGRESSE, a French Citizen, of 48, rue du Théâtre, Paris, (Seine), France, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

In certain known endless tracks comprising a plurality of metal shoes connected in series, the tracks run on the carrying wheels and bear by the flat portions on the cylindrical rims of the carrying wheels.

For driving the track a driving wheel is provided having teeth which engage the metal shoes in driving portions and in such an arrangement idle wheels generally carry the track on a cylindrical rim.

The known arrangements constructed according to the foregoing very general rules suffer from a number of disadvantages:

1. They are noisy since the track is only able to rest on the carrying wheels along a line of contact parallel to the axis of the wheels, for each shoe, there is at each contact of a shoe and carrying wheel an impact which is more intense the greater the speed.

2. The pitch of the track varies with the wear. This is contrary to correct meshing of the driving wheel teeth and driving portions of the shoes and necessitates premature rejection of rather expensive parts.

3. Portions of soil find their way into the teeth of the driving wheel and into the track and are detrimental to correct meshing.

4. In addition to its driving portions, the track requires a special guiding device.

It is the object of the present invention to remedy or to correct these disadvantages in a large measure.

According to the invention, in an endless track for vehicles of the type comprising a plurality of metal shoes connected in series, is provided a carrying wheel formed in halves having conical rims or walls on which the shoes of the endless track bear, the conical rims or

walls being adjustable relatively to each other in an axial direction, whereby, for example, the effective pitch of the teeth, such as are provided on the driving wheel, or the tension in the track may be varied.

It has been proposed heretofore in connection with endless tracks for vehicles consisting of a continuous band of flexible elastic material to provide carrying wheels comprising two conical half portions, the spacing apart of the half portions being varied by means of ring-shaped fillers to accommodate for changes in size of the tracks used.

The invention is illustrated by way of example in the accompanying drawing in which:—

Figure 1 shows a view in elevation of the track mounted on its driving wheel and idle wheel;

Figure 2 shows in section a half-shoe and its driving half-wheel;

Figure 3 is a view in section of a half-shoe and its idle half-wheel;

Figure 4 is a modification of Figure 2, in which the shoes run on the exterior of the driving wheels;

Figure 5 is a corresponding modification of Figure 3.

The device as a whole comprises an endless track of known type (Figure 1), a toothed driving wheel or sprocket 2 (Figures 1, 2 and 4) and an idle wheel 3 (Figures 1, 3 and 5).

The shoes of the track comprise, as in the known devices, a face 4 with projections which make contact with the ground. This face may obviously carry rubber blocks for travelling on hard ground, as is moreover known.

The opposite face principally comprises two large ribs 5 (Figures 2, 3, 4 and 5) inclined relatively to the vertical plane.

These inclined faces 5, which may comprise portions at different angles, as is shown in the Figures, bear by their base on the walls or rims 6 (Figures 2 and 4) of the driving wheel on the one hand and on the walls 7 (Figures 3 and 5) of the idle wheel on the other hand, the said walls being made conical for

this purpose.

The tooth 8 (Figures 1, 2 and 4) of the driving wheel 2 engages an appropriate opening 9 (Figures 2, 3, 4 and 5) provided for this purpose in the shoe.

The idle pulley 3 (Figures 1, 3 and 5) does not of course comprise any teeth.

In order to remedy the disadvantage of the change of pitch due to the elongation of the band or to wear, the distance between the two driving half-wheels 2 (Figures 2 and 4) is made variable, for example by means of spacing washers 10 (Figure 2) disposed between the wheel 2 (Figure 2) and its hub 11 (Figure 2).

It will be readily appreciated that by removing or adding spacing washers 10 (Figure 2), the two driving half-wheels 2 (Figure 2) mounted symmetrically on the same hub will be moved nearer to or further away from each other and will consequently cause the running diameter of the track to vary, which will of course result in a corresponding variation of the angular pitch of meshing.

When the whole is new, the toothed half-wheels 2 are moved away from each other to the maximum amount, and the running diameter is a minimum. When the wear of the shoe pivots or the elongation of the band makes itself felt, the pitch of the endless track increases and meshing is no longer satisfactory. At this time, the two half-wheels 2 (Figure 2) are moved towards each other by removing one or more washers 10 (Figure 2) so as to increase the running diameter of the track, which likewise increases the diameter of the pitch circle of meshing and consequently the length of the pitch. This device renders it possible to make corrections of pitch, the magnitude of which depends upon the height of the driving teeth 8 (Figures 1, 2 and 4) of the driving sprocket and of the lateral play of the openings 9 (Figures 2, 3, 4 and 5) in which the teeth 8 engage.

It should be observed that in the case of Figures 4 and 5, the moving of the driving half-wheels away from or towards each other will have an opposite effect to that of Figures 2 and 3, without however in any way altering the idea of the invention.

It will likewise be observed that in both cases (Figures 2 and 3) or (Figures 4 and 5), it is possible to construct the same device with half-wheels mounted to touch one another, the construction of the shoe being of course rendered appropriate. This variation in the construction will not detract in any way from the character of the invention.

The teeth 8 (Figures 1, 2 and 4) pass through the sole plates 12 (all the Figures) of the shoe by way of the openings 9 (Figures 2, 3, 4 and 5) which are made wider than the thickness of the teeth 8. Furthermore, the shoes do not rest on the bottom of the teeth, but bear on the driving wheel by an inclined face 5 (Figures 3, 4). The teeth only come into contact with the shoes by their driving faces. This arrangement, as will be readily appreciated, prevents portions of earth from interfering with the gearing and obviates the "choking" which is so detrimental in endless tracks.

It will be appreciated that with this construction, the contact of the shoes on the wheels 2 and 3 is made by two inclined surfaces instead of plane surfaces and will therefore be less noisy than in the latter case, because the shoes—at the moment of making contact with the wheels—will in a manner wedge themselves with a sliding movement in the latter, instead of bearing on them with a violent shock.

For correcting the tension of the band, it is possible to employ the idle wheel, constructed on the same principle as the driving wheel. The said tension may be varied by increasing or reducing the distance between the two idle half-wheels, so as to cause the running diameter of the band to vary.

It is clear that this latter variation of tension will have no connection with the correction of the pitch, which is obtained with the driving wheel only.

It will be seen, furthermore, that this form of construction dispenses with the special guiding devices which certain endless tracks have employed heretofore, because in this case guiding is ensured by the inclined ribs 5, which, as previously explained, serve at the same time as support on the carrying wheels.

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

1. In an endless track for a vehicle comprising a plurality of metal shoes connected in series, a carrying wheel formed in halves having conical rims or walls on which the shoes of the endless track bear, the conical rims or walls being adjustable relatively to each other in an axial direction, whereby, for example, the effective pitch of the teeth, such as are provided on the driving wheel, or the tension in the track may be varied.

2. A carrying wheel according to claim 1, comprising separate rims assembled

face to face and so mounted on a hub as to permit the distance between them to be varied.

3. A carrying wheel for endless tracks 5 for vehicles substantially as described or substantially as shown in Figures 2, 3, 4 or 5 of the accompanying drawing.

4. An endless track arrangement for 10 vehicles when incorporating a carrying wheel according to any of the preceding claims.

5. An arrangement as claimed in claim 4 characterised in that the shoes of the endless track comprise inclined ribs dis- 15 posed on their internal face, the said ribs serving as running support on the corresponding conical rims of the carrying wheels.

6. An arrangement as claimed in claim 4 or claim 5 in which the driving wheel, 20 provided with a rim having conical walls, comprises in addition driving teeth of a greater diameter than that of the conical wall, the said driving teeth engaging openings provided in the shoe 25 by passing through the said openings.

7. Endless track arrangements for 30 vehicles, substantially as described, or substantially as shown in the accompanying drawing.

Dated this 16th day of May, 1935.

ADOLPHE KEGRESSE.

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E.C. 1,

Chartered Patent Agents.

Fig. 1.

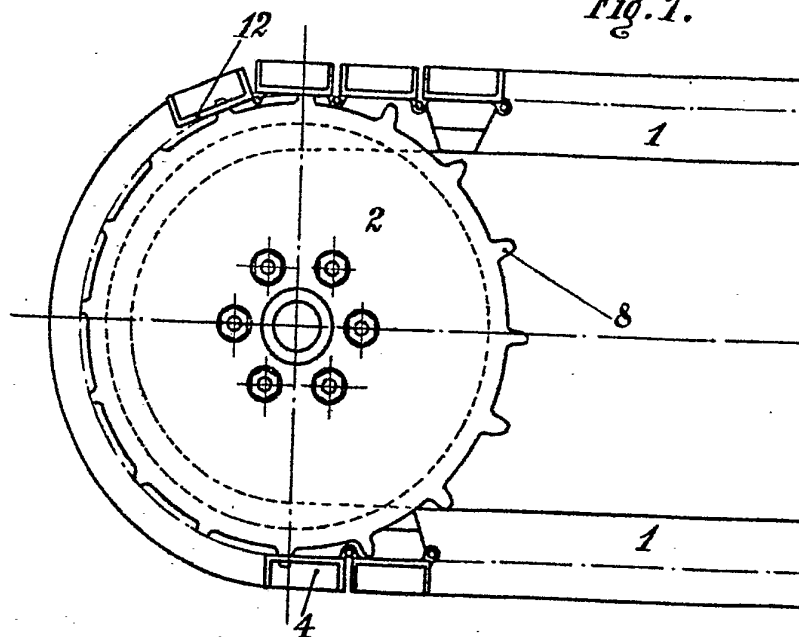
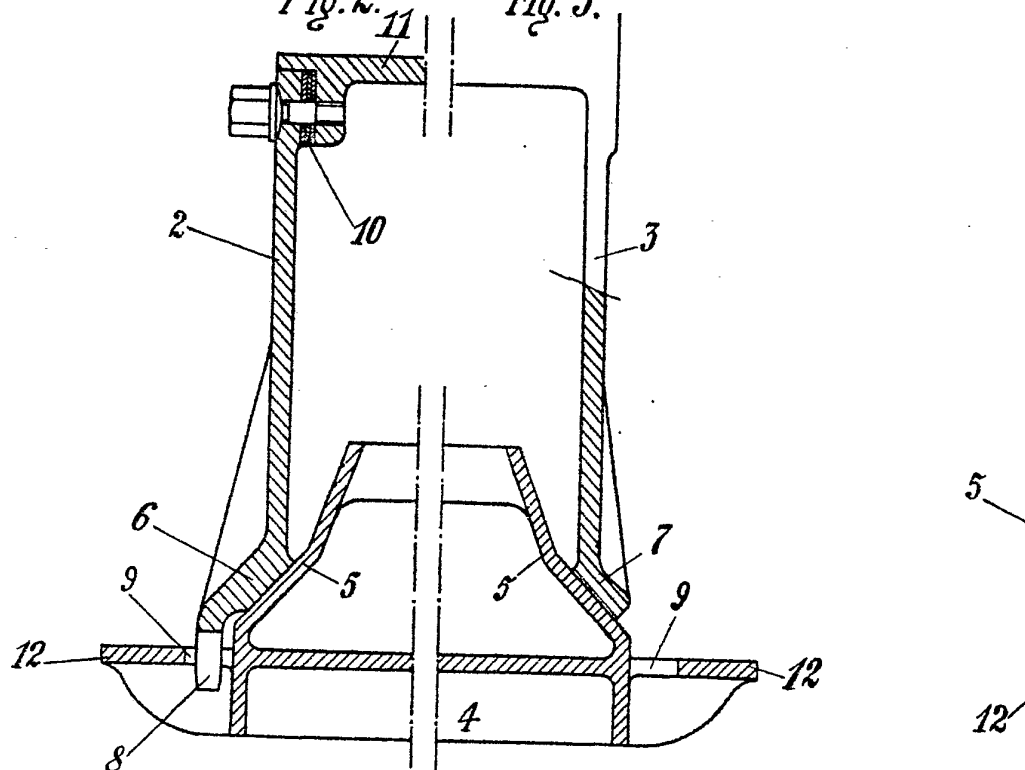


Fig. 2.

Fig. 3.



[This Drawing is a reproduction of the Original on a reduced scale.]

Fig. 1.

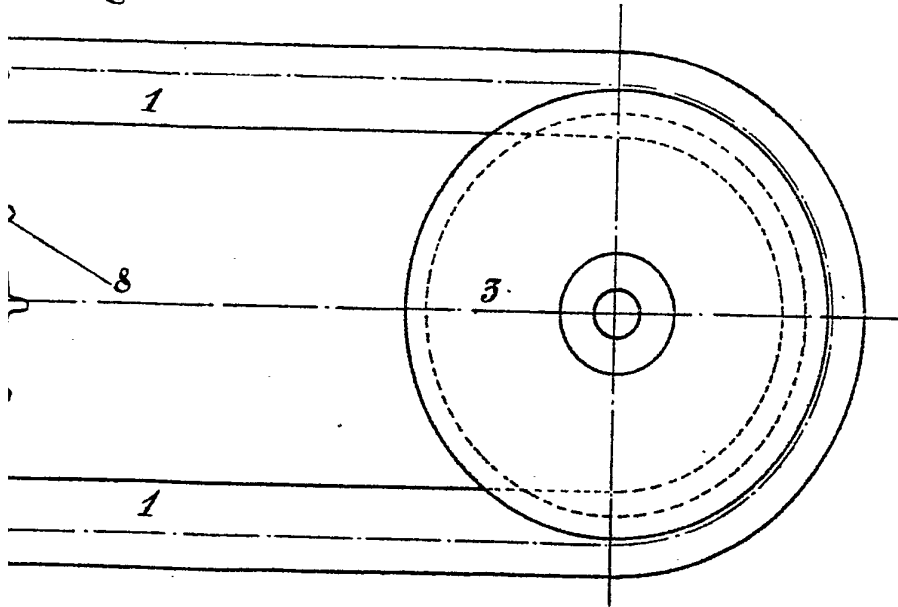


Fig. 4.

Fig. 5.

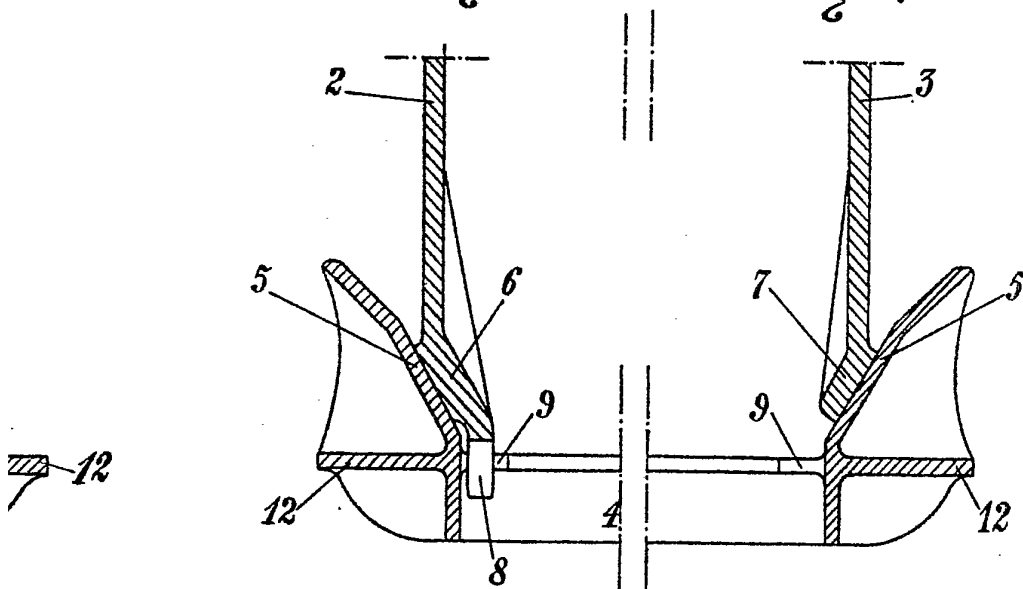


Fig. 1.

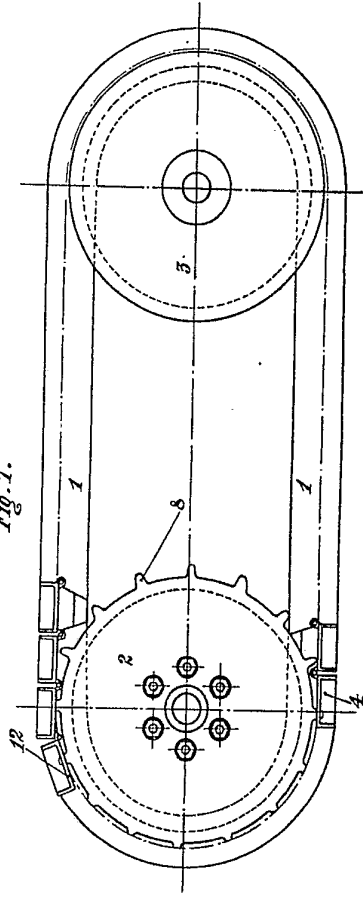


Fig. 2.

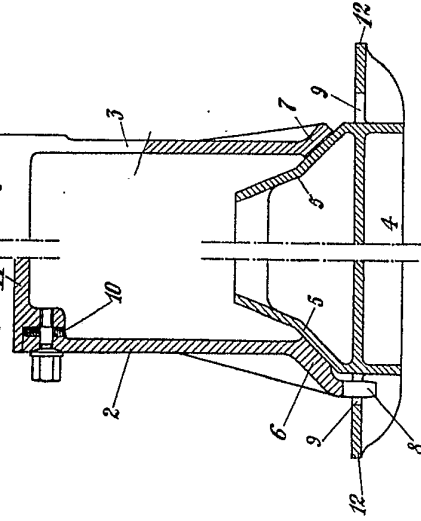


Fig. 3.

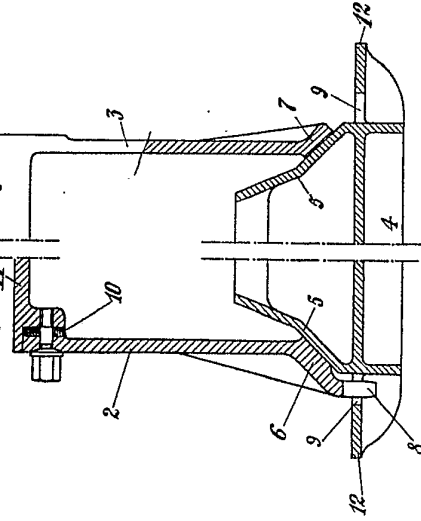


Fig. 4.

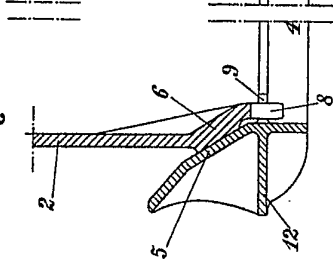
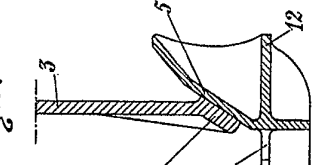


Fig. 5.



[This Drawing is a reproduction of the Original on a reduced scale]