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[54] **MOTOR SLEIGH DRIVE TRACK ARRANGEMENT**

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[51] **Int. Cl.** **B62m 27/02**

[58] **Field of Search** ..... 180/5 R

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[57] **ABSTRACT**

A motor sleigh has at its rear end an endless propulsion track which, in order to provide a greater area of contact with the terrain over which the sleigh travels, is extended further rearwardly than conventional propulsion tracks. The rearmost portion of the track is guided around rear guide rollers carried on the rear ends of leaf springs extending rearwardly from the sleigh body, and these springs can flex to allow upward deflection of the rearmost portion of the track as it travels over a rise in the terrain. Further guide rollers located forwardly of the rear guide rollers are pivotably mounted and spring biased downwardly against the lower run of the track.

4 Claims, 2 Drawing Figures

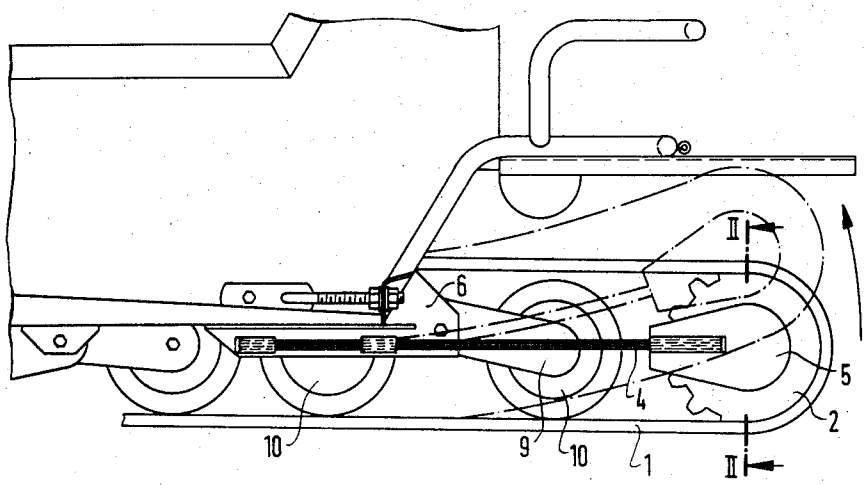


Fig. 1

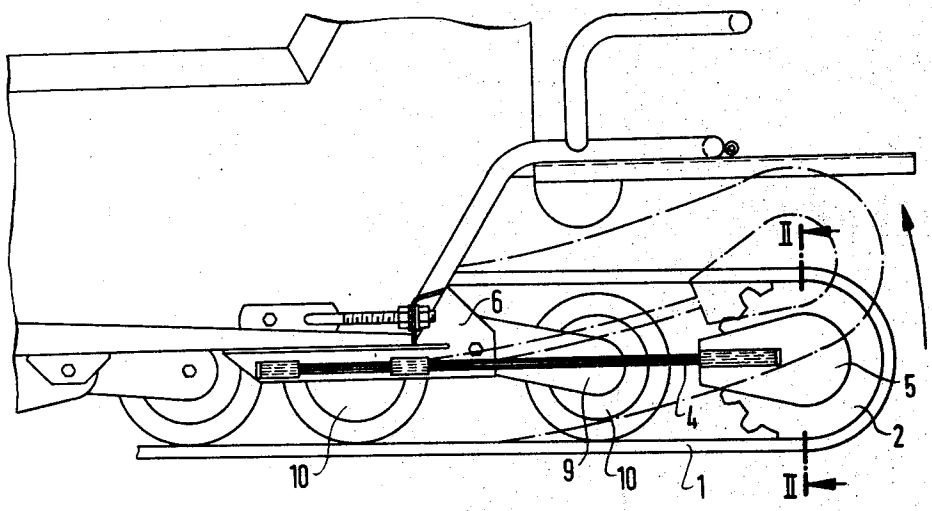
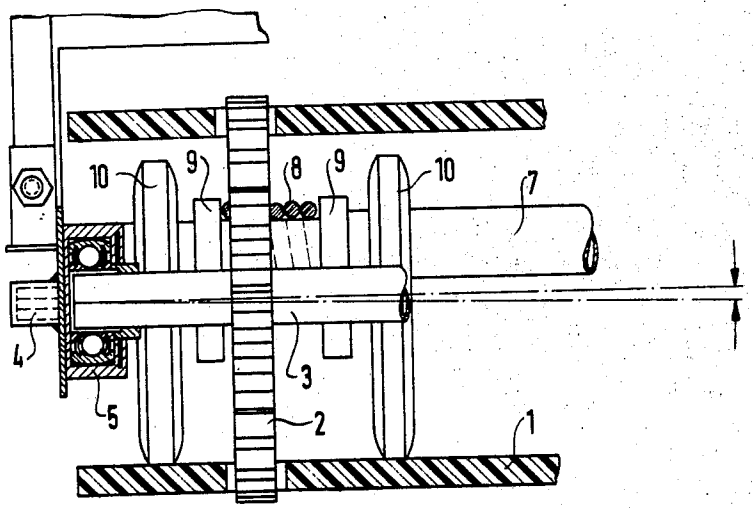


Fig. 2



MOTOR SLEIGH DRIVE TRACK ARRANGEMENT

The present invention relates to motor sleighs having at their rear ends endless tracks for propelling the motor sleighs over snow.

It is known that travel in a motor sleigh over soft snow can present difficulties resulting from the comparatively high weight of the sleigh compared to the area of the snow on which the sleigh is supported. In soft snow, there is often a tendency for the propelling track to burrow into the snow, thus causing the rear end of the motor sleigh to sink into the snow, with the result that the front end of the sleigh no longer has a sufficient grip on the snow to enable satisfactory steering of the sleigh to be effected.

If attempts are made to overcome this difficulty by providing a longer endless track, with a view to increasing the area of snow on which the track is supported, there is a danger that when the sleigh is travelling over undulating terrain, the extra length of the endless track, when the rear end of the endless track is raised by a hump or other rise in the terrain, may cause the front end of the sleigh to be driven into the snow, particularly if there is also a hump or other rise in the terrain at the front end of the sleigh.

It is accordingly, an object of the present invention to provide a motor sleigh by which the above-described disadvantages are mitigated.

It is a further object of the present invention to provide a motor sleigh having at its rear end an endless track having a length greater than conventional tracks employed hitherto, but which can adapt to variations in terrain over which the motor sleigh travels.

According to the invention, there is provided a sleigh having at its rear end an endless track the rearmost portion of which is upwardly deflectable relative to the sleigh to adapt to variations in terrain, the rearmost portion of the track being guided around rearmost track guide rollers carried on a shaft journalled in bearings which are supported on the rear ends of leaf springs. The leaf springs extend longitudinally of the motor sleigh and are connected at their forward ends to the rear of the body of the motor sleigh, the connection allowing adjustment of the leaf springs longitudinally of the motor sleigh.

By flexing of the leaf springs, the rearmost portion of the track mat can move upwardly relative to the sleigh when this portion is passing over a hump or other rise in the terrain, and this upward deflection avoids driving the front end of the sleigh into the snow. By thus enabling the rearmost portion of the track to adapt to variations in terrain, it is possible to increase the length of the endless track, and thus the area of snow on which the endless track is supported, as compared with conventional sleigh propulsion tracks.

Further track guide rollers may be provided spaced forwardly of the rearmost portion of the track and forwardly of the body of the motor sleigh, and may be carried on a shaft which is pivotally connected to the body of the motor sleigh and spring biased downwardly against the lower rung of the endless track. With this arrangement, these further rollers are also able to be deflected upwardly as they pass over humps or other rises in the terrain, and they also assist in maintaining the endless track in contact with the snow so as to provide as large an area of contact as possible between the endless track and the snow.

The invention will be more readily understood from the following description of an embodiment thereof given by way of example with reference to the accompanying diagrammatic drawings, in which:

FIG. **1** shows a side view of parts of the rear end of a motor sleigh;

FIG. **2** shows a view taken in section along the line II—II of FIG. **1.**

As shown in the drawing, the motor sleigh is provided at its rear end with an endless propulsion track **1** the rearmost end of which is guided around sprocket rollers **2** (of which only one is shown). The rollers **2** are carried on a shaft **3** which is journalled at each end in a respective bearing **5.** The bearings **5** are mounted on the rear ends of leaf springs **4,** the forward ends of which are connected to the rear part of the body of the motor sleigh on both sides thereof.

In order to allow the rearmost portion of the endless propulsion track **1** to adapt to variations in terrain transversely of the motor sleigh, the bearings **5** supporting the ends of the shaft **3** are arranged to allow the shaft **3** to be deflected through a few degrees from the axis of the bearings **5,** as indicated by the arrows in FIG. **2.**

The leaf springs **4** are connected to the body of the motor sleigh by connecting plates **6,** which are so connected to the body of the motor sleigh as to be adjustable longitudinally of the motor sleigh, thus allowing the leaf springs **4** and the rollers also to be adjusted in position longitudinally of the motor sleigh. This enables the tension of the track **1** to be adjusted, and also facilitates dismounting and reassembly of the endless track **1.**

The connecting plates **6** for the leaf springs **4** are also employed to support a further shaft **7,** which is carried on the rearmost ends of arms **9,** these arms **9** being so connected to the connecting plates **6** as to be pivotable about a horizontal axis to allow vertical deflection of the shaft **7.** Springs **8** are provided for biasing the shaft downwardly, thereby to press further track guide rollers **10** carried by the shaft **7** against the lower run of the endless track **1.**

With the above-described arrangement, the rearmost portion of the endless propulsion track **1** can be deflected upwardly by variations in the terrain over which the motor sleigh is travelling into the position illustrated by dot and dash lines in FIG. **1.** When the rearmost portion of the endless propulsion track **1** is thus upwardly deflected, the spring-biased rollers **10** pressing against the lower run of the endless propulsion track **1** help to maintain as large an area as possible of the lower run of the endless propulsion track **1** in contact with the terrain to improve the grip of the endless propulsion track **1** on the terrain.

In their normal, i.e. at rest, positions, the leaf springs **4** are substantially horizontal, and the leaf springs **4** and the axis of the rearmost track guide rollers **2** are disposed at a level below that of the axis of the shaft **7** carrying the further track guide rollers **10.** Consequently, the rearmost portion of the endless track **1,** when in its normal at rest position, will form a straight continuation or rearward extension of the rest of the track system of the motor sleigh. The further track guide rollers **10** add to the rigidity of the rearmost portion of the track with respect to torsion about the longitudinal axis of the motor sleigh, so that less torsional stress will be exerted on the bearings **5.** However, this torsional

stress on the bearings **5** will also be prevented from becoming very high since the leaf springs **4** can also twist about their longitudinal axis with comparative ease. The deflection of the axis of the shaft **3** relative to those of the bearings **5** is however desirable since at high speeds of travel of the motor sleigh there is a continuous swivelling or vibration to and fro of the rearmost portion of the endless propulsion track **1** at a relatively high frequency, and the effect of this vibration on the bearings **5** is mitigated by the deflection of the shaft axis relative to the bearing axis.

I claim:

1. A motor sleigh, having a body, an endless terrain-engagement track for propelling said body, track guide means for guiding said track around an endless path, said track guide means including rearmost track guide means, bearing means rotatably supporting said rearmost track guide means, leaf springs extending rearwardly from said body and connected to said bearing means, means connecting the foremost ends of said leaf springs to the rear end of said body, said leaf springs forming the sole supports for said bearing means, whereby vertical movements of said bearing means are opposed solely by the resiliency of said leaf springs.

2. A motor sleigh having a body, an endless terrain-engagement track for propelling said body, track guide means within said track for guiding said track around an endless path, said track guide means including a pair of first track guide rollers spaced rearwardly from said body, and a pair of second track guide rollers spaced rearwardly of said body and forwardly of said first track guide rollers, bearing means rotatably supporting said first rollers, two sets of leaf springs spaced apart transversely of said sleigh, said leaf springs extending rearwardly from said body and being connected to said bearing means, means connecting the foremost ends of said leaf springs to the rear end of said body, said leaf springs forming the sole supports for said bearing means, whereby vertical movements of said bearing means are opposed solely by the resiliency of said leaf springs, pivotal supports extending rearwardly from said body and supporting said second rollers, said supports being pivotable relative to said body, and spring means biasing said supports downwardly for urging said second rollers downwardly onto said track.

3. A motor sleigh as claimed in claim **2,** further comprising a shaft on which said first rollers are mounted, and means connecting said leaf springs to said shaft, said shaft being journalled in said bearing means and said bearing means including means allowing limited deflection of the axis of said shaft from the axes of said bearing means.

4. A motor sleigh as claimed in claim **2,** wherein said supports comprise a pair of pivotal arms extending rearwardly of the rear of said body.

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