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(54) **MULTI-EDGE TRACTION LUG TRACK**

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(57) **ABSTRACT**

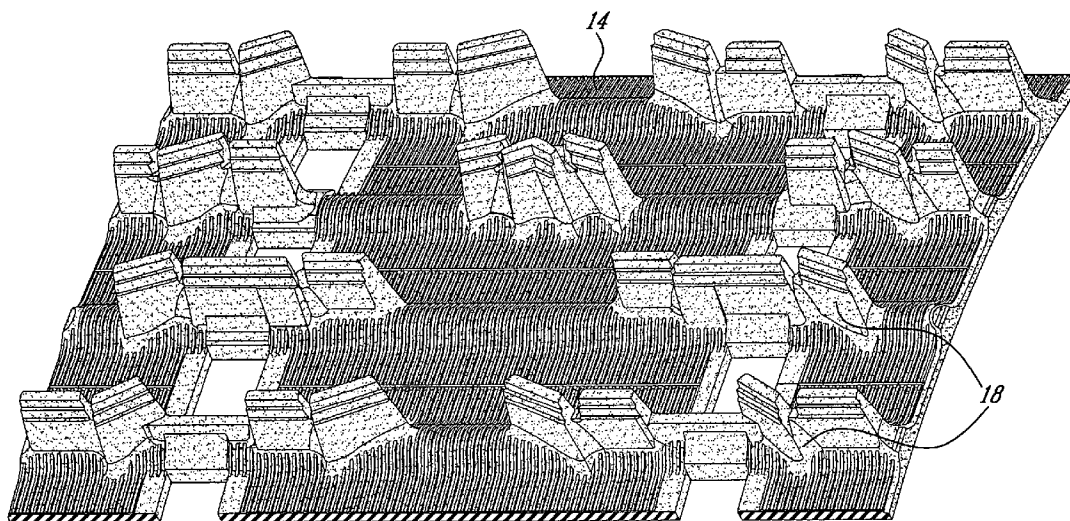
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A track comprising treads with at least one uneven surface and a decreasing cross section from a top part thereof to a bottom part thereof, the top part having a section smaller than the bottom part thereof, thereby allowing a multi-edge ground contacting surface as well as a reduced noise generation.



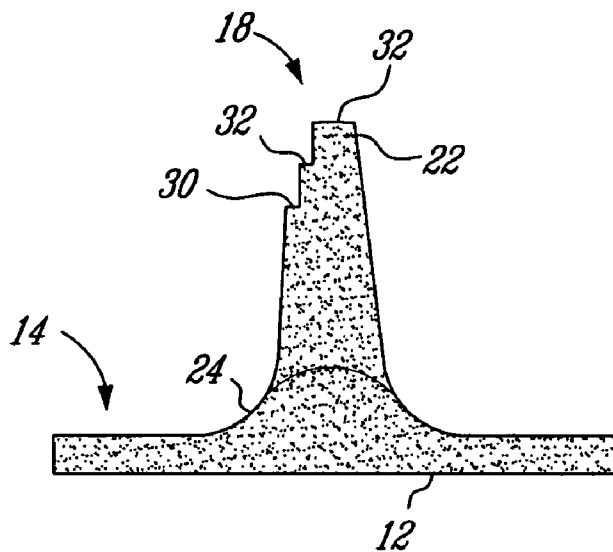


FIG. 1A

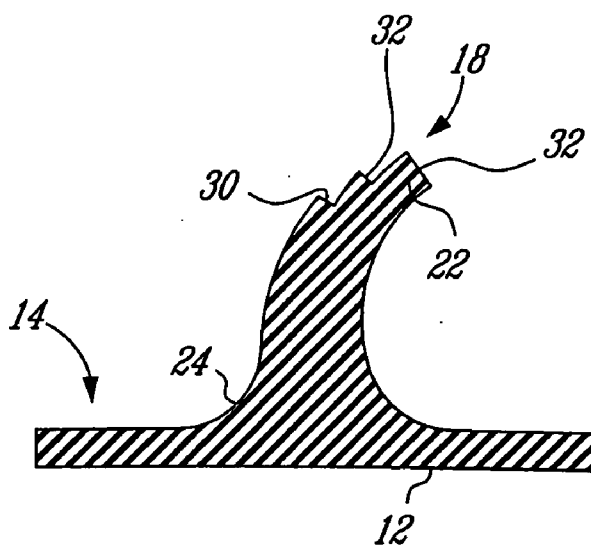


FIG. 1B

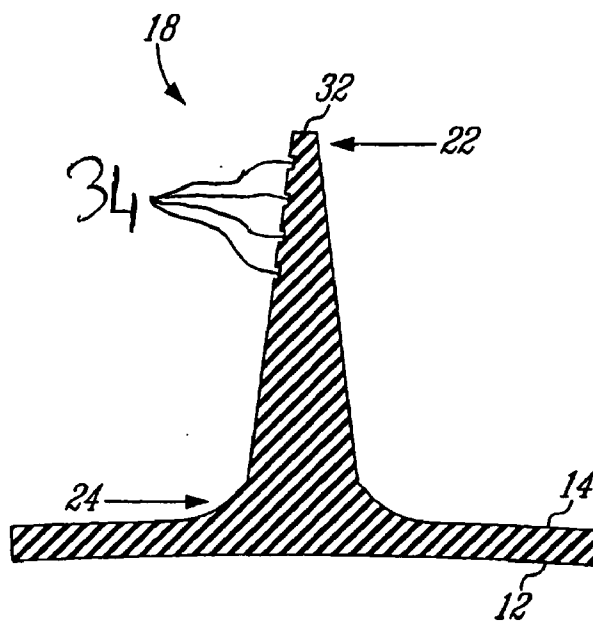


FIG. 2A

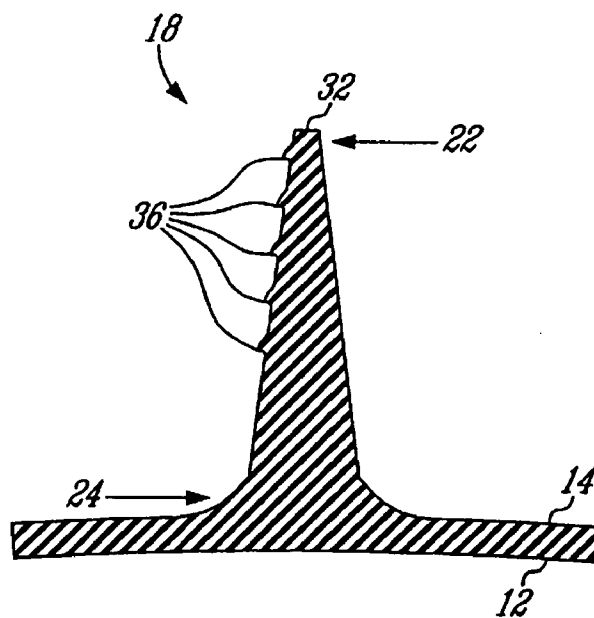


FIG. 2B

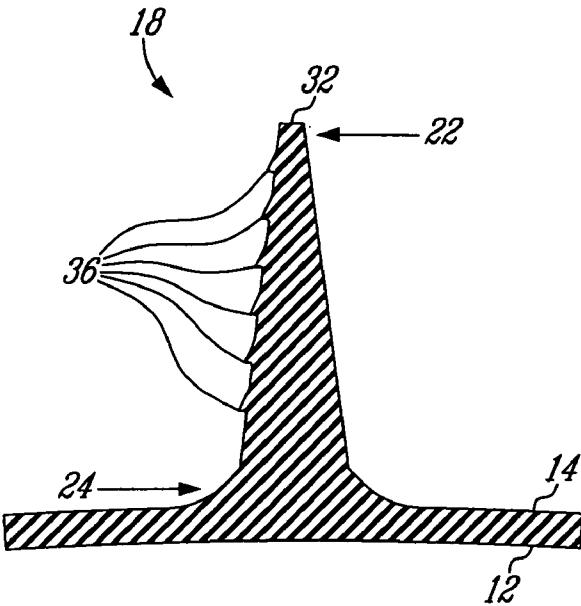


FIG. 20

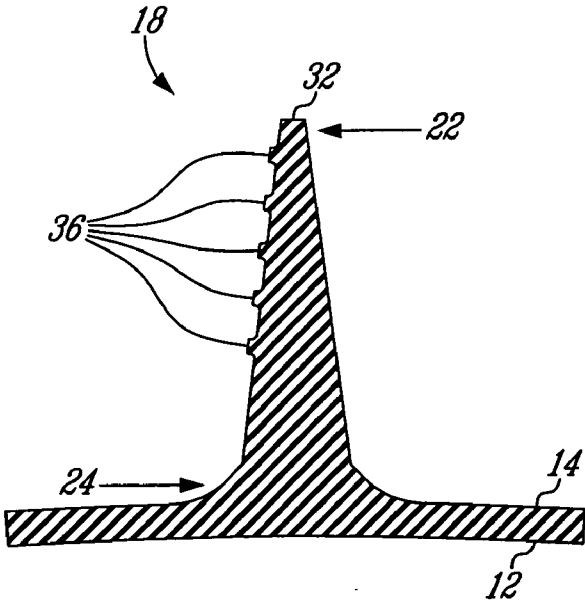


FIG. 21

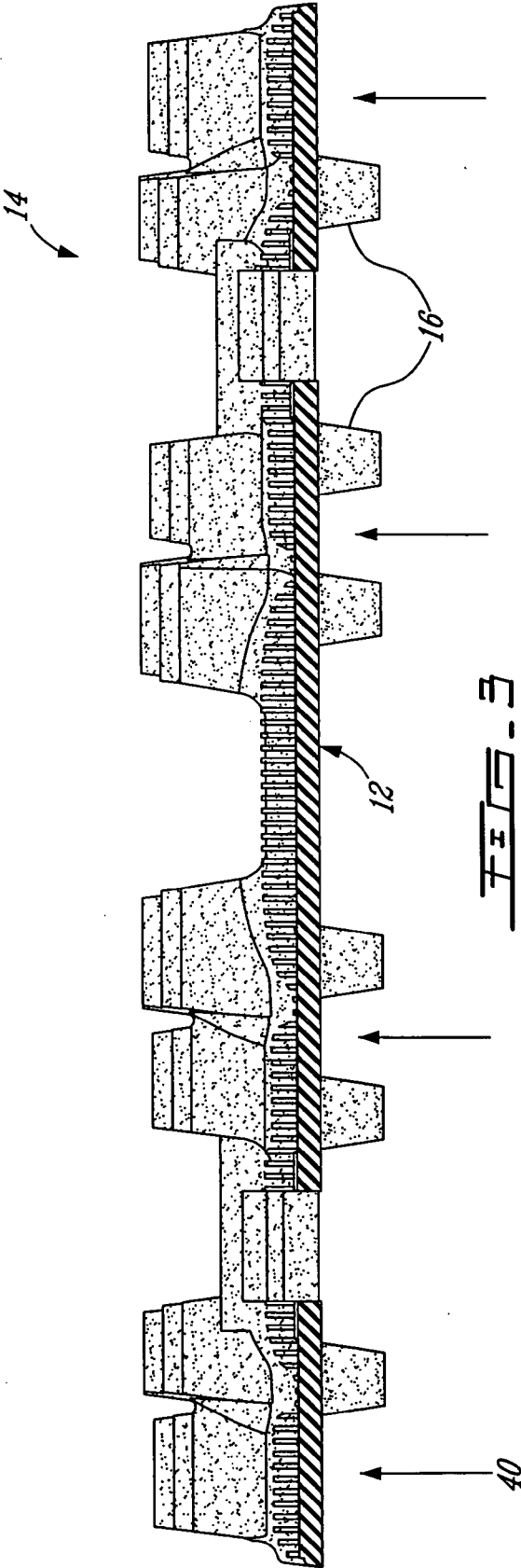


FIG. 3

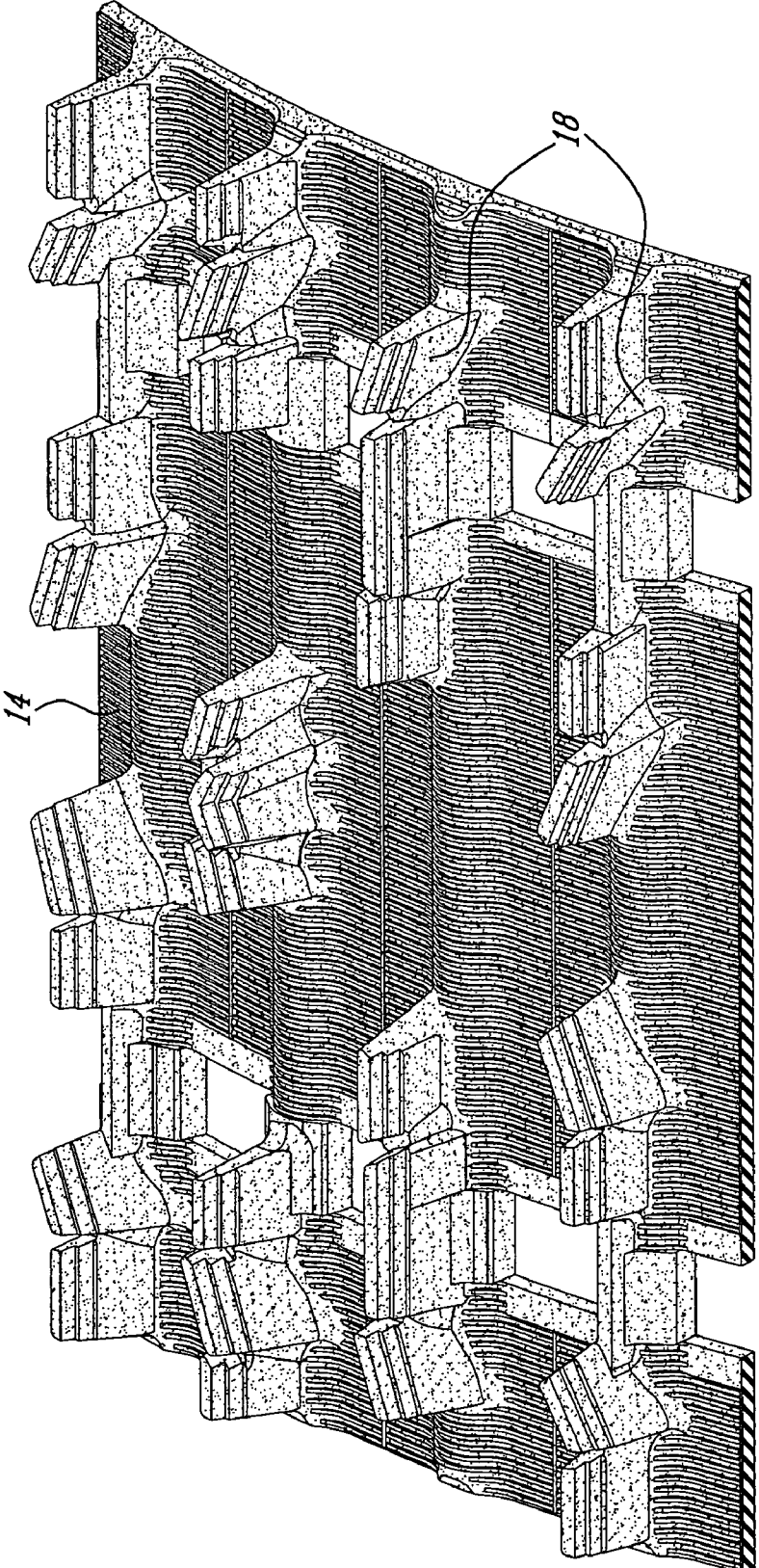


FIG. 4

MULTI-EDGE TRACTION LUG TRACK

CROSS REFERENCE TO RELATED APPLICATIONS

[0001] This application claims priority from Canadian patent application no. 2,505,307, filed on Apr. 26 2005, the disclosure of which is herein incorporated by reference.

FIELD OF THE INVENTION

[0002] The present invention relates to rubber tracks. More specifically, the present invention is concerned with a multi-edge traction lug track.

BACKGROUND OF THE INVENTION

[0003] A propulsion system generally found on tracked vehicles such as snowmobiles consists of a pair of longitudinally spaced apart wheel structures arranged on opposite sides of the vehicle chassis, which is driven by a pair of endless, substantially inextensible belts, each having an inner surface and a ground-engaging surface.

[0004] The inner surface is provided with a series of longitudinally spaced members, which guide the track relative to driving and tracking wheels forming part of the wheel structures. The ground-engaging surface of the belt is formed of a plurality of longitudinally spaced tread members that provide traction to the vehicle when traveling on various ground conditions. The ground-engaging surface of the track may comprise a series of integral profiles having various configurations to provide traction to the snowmobile.

[0005] Therefore, a track is usually formed of a body of elastomeric material, the ground-engaging surface thereof displaying a series of transverse profiles that provide traction for the snowmobile as it travels over a surface, while the inner surface of the track displays a series of integral lugs, which are contacted by sprocket wheels that drive the snowmobile track in rotation.

[0006] In spite of a number of developments in the field of tracks, there is still a need in the art for a track allowing efficient traction of a tracked vehicle over a range of surface conditions, while reducing noise generation.

SUMMARY OF THE INVENTION

[0007] More specifically, there is provided an endless track belt having an inner surface face and a ground-engaging surface, which, as it passes along a lower run of the belt, engages a surface to be traversed, the ground-engaging surface comprising a series of transversally extending treads, wherein at least one of: i) a front face and ii) a rear face of the treads is uneven.

[0008] Other objects, advantages and features of the present invention will become more apparent upon reading of the following non-restrictive description of embodiments thereof, given by way of example only with reference to the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0009] In the appended drawings:

[0010] **FIG. 1** shows a cross section of a tread according to an embodiment of the present invention, a) when unfolded

in absence of traction of the ground; and b) when folded, during traction on the ground;

[0011] **FIG. 2** shows cross sections of threads according to further embodiments of the present invention;

[0012] **FIG. 3** is a cross section of a track according to an embodiment of the present invention; and

[0013] **FIG. 4** is a top perspective view of the track of **FIG. 2**.

DESCRIPTION OF EMBODIMENTS OF THE INVENTION

[0014] A typically comprises an endless drive belt trained around drive sprockets or wheels (not shown) for driving the belt in an endless path. As illustrated in the **FIGS. 1-4**, the belt has an inner surface face **12** and a ground-engaging surface **14**, which, as it passes along a lower run of the belt, engages a surface (not shown) to be traversed.

[0015] The inner track surface **12** is typically provided with spaced drive lugs **16**, as shown in **FIG. 3**, which are spaced along the length of the inside of the belt for engaging the drive wheels (not shown) as is well known in the art.

[0016] The ground-engaging surface **14** typically comprises a series of transversally extending treads **18** extending generally from a center of the ground-engaging surface **14** to lateral edges thereof.

[0017] The treads **18** may be made of a rubber material. The endless belt may be made of flexible rubber or flexible rubber reinforced by rods (not seen) to strengthen the track, as is well known in the art. Typically, conventional tracks include, embedded in the rubber material of the body of the belt and in the region of the treads **18**, such reinforcing rods, either metallic or plastic, to provide transverse rigidity to the track. Moreover, the track may comprise longitudinal perforated bands (not shown) supporting steal fasteners, as known in the art.

[0018] As illustrated in **FIGS. 1 and 2**, the face of the treads **18** is uneven, either in a step like manner (**FIG. 1**) or by presenting indentations **34** (**FIG. 2a**), or projections **36** (**FIG. 2b, 2c**) or edges (**FIG. 2d**). These formations may be provided on the front face or/and on the rear of the treads **18** in a continuous or discontinuous way. These formations, either on the front face, i.e. facing forward in relation to the vehicle, or on the rear face, i.e. on the face facing backwards, or both, provide an increased number of ground engaging surfaces.

[0019] Furthermore, the treads have a non-uniform cross-section, from a top part **22** thereof to a bottom part **24** thereof, an outer edge **32** of the top part **22** being generally flat. The top part **22** has a section smaller than the bottom part thereof **24**, the bottom part **24** thus being more massive and rigid.

[0020] In **FIGS. 1A and 1B**, the cross-section of a face of the treads **18** decreases in width by steps **30** and **32**, the steps **30** and **32** providing formations on the face of the treads **18**.

[0021] During traction, as the top parts **22** of the treads **18** tend to bend, as illustrated in **FIG. 1b**, uneven front faces of the treads **18** provides a number of surfaces of contact with the ground as the tread bends, the bottom parts **24** further achieving a grabbing action, thereby enhancing traction,

especially during acceleration, for example. Uneven rear faces of the treads **18** provide a number of surfaces of contact with the ground as the tread bends during breaking, thereby improving braking.

[0022] Uneven faces of the treads **18** therefore allow an increased driving control and stability.

[0023] It is further found that such a cross section, providing tread of reduced height in regions **40** of the track where idle wheels pass as shown in **FIG. 3**, further results in a reduction of noise generation.

[0024] Such a track may be used for recreational vehicles, snowmobiles or ATV for example.

[0025] Although the present invention has been described hereinabove by way of embodiments thereof, it may be modified, without departing from the nature and teachings of the subject invention as defined in the appended claims.

What is claimed is:

1. An endless track belt having an inner surface face and a ground-engaging surface, which, as it passes along a lower run of the belt, engages a surface to be traversed, the ground-engaging surface comprising a series of transversally extending treads, wherein at least one of: i) a front face and ii) a rear face of said treads is uneven.

2. The endless track belt of claim 1, wherein the at least one uneven face of said treads comprises at least one of steps, indentations, projections and edges.

3. The endless track belt of claim 1, wherein the at least one uneven face of said treads comprises formations increasing a ground-engaging surface of the threads.

4. The endless track belt of claim 1, said treads having a non-uniform cross section from a top part thereof to a bottom part.

5. The endless track belt of claim 1, wherein said treads have a reduced height in a region of the track where idle wheels pass.

6. The endless track belt of claim 1, trained around drive sprockets and wheels for driving the belt in an endless path.

7. The endless track belt of claim 1, wherein said inner track surface is provided with spaced drive lugs.

8. The endless track belt of claim 1, wherein said treads extends generally from a center of the ground-engaging surface to lateral edges thereof.

9. The endless track belt of claim 1, said belt being made in one of flexible rubber and reinforced flexible rubber, and said treads are made of a rubber material.

10. A recreational vehicle comprising the endless track belt of claim 1.

11. A snowmobile comprising the endless track belt of claim 1.

12. An ATV comprising the endless track belt of claim 1.

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