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(54) VEHICLE TRACK AND TRACK SYSTEM

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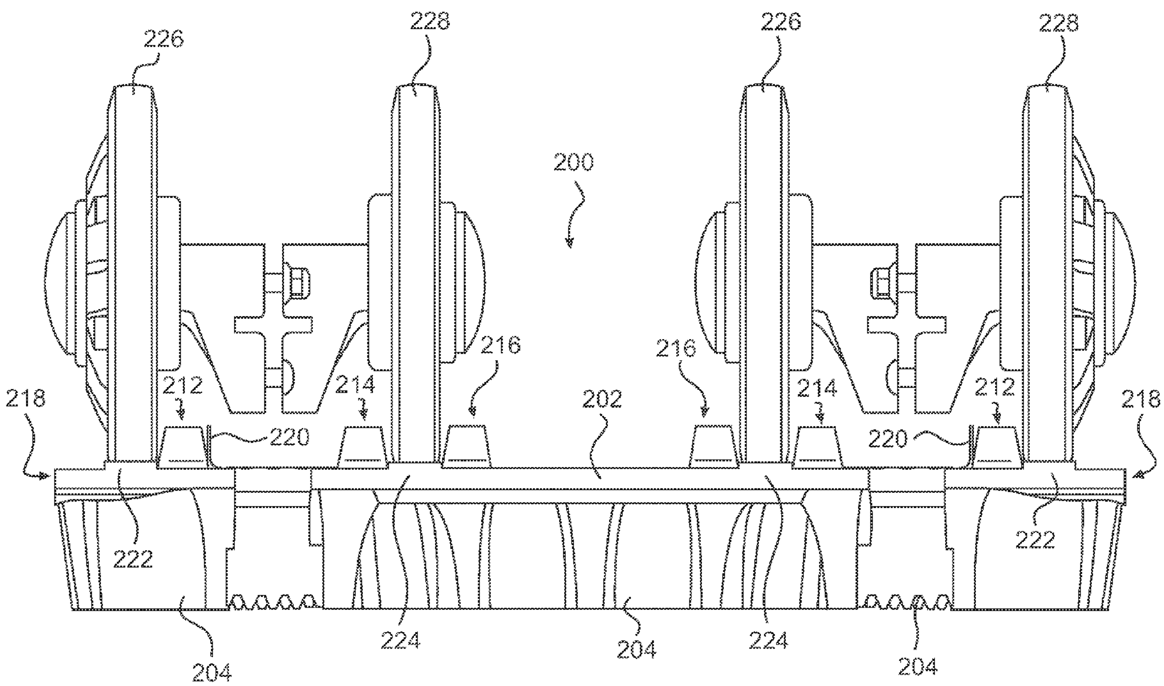
(57) ABSTRACT

A vehicle track has a belt, a plurality of terrain lugs distributed circumferentially about an outer side of the belt, and a plurality of drive lugs distributed circumferentially about an inner side of the belt. A first and a second strip are disposed on the inner side of the belt. The first strip extends along an entire circumference of the inner side of the belt. The first strip is configured for engaging at least one wheel of a track system when the track is in use with the track system. The second strip is laterally spaced from the first strip and extends along an entire circumference of the inner side of the belt. The second strip is configured for engaging at least one other wheel of the track system when the track is in use with the track system. A vehicle track system is also disclosed.



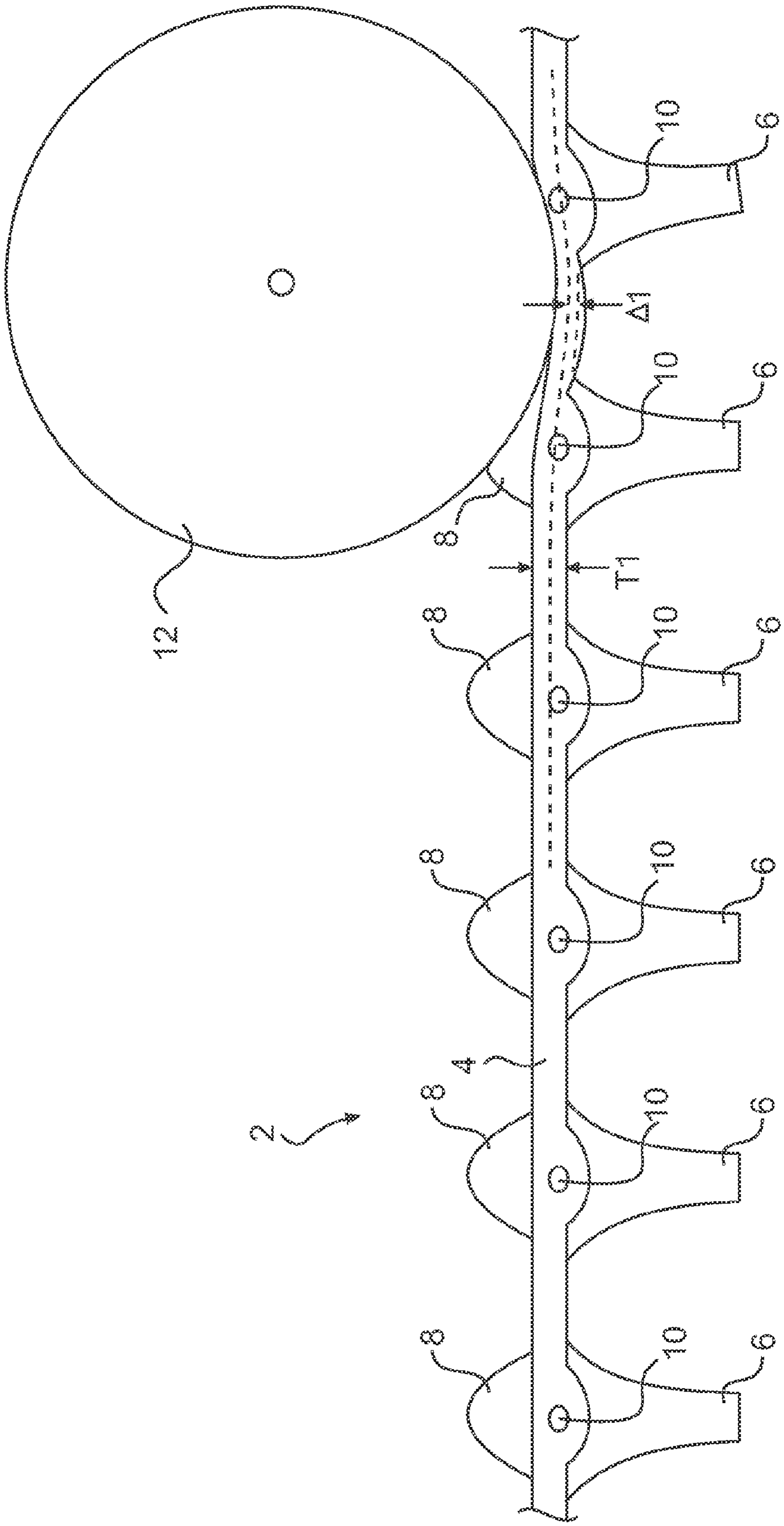


FIG. 1

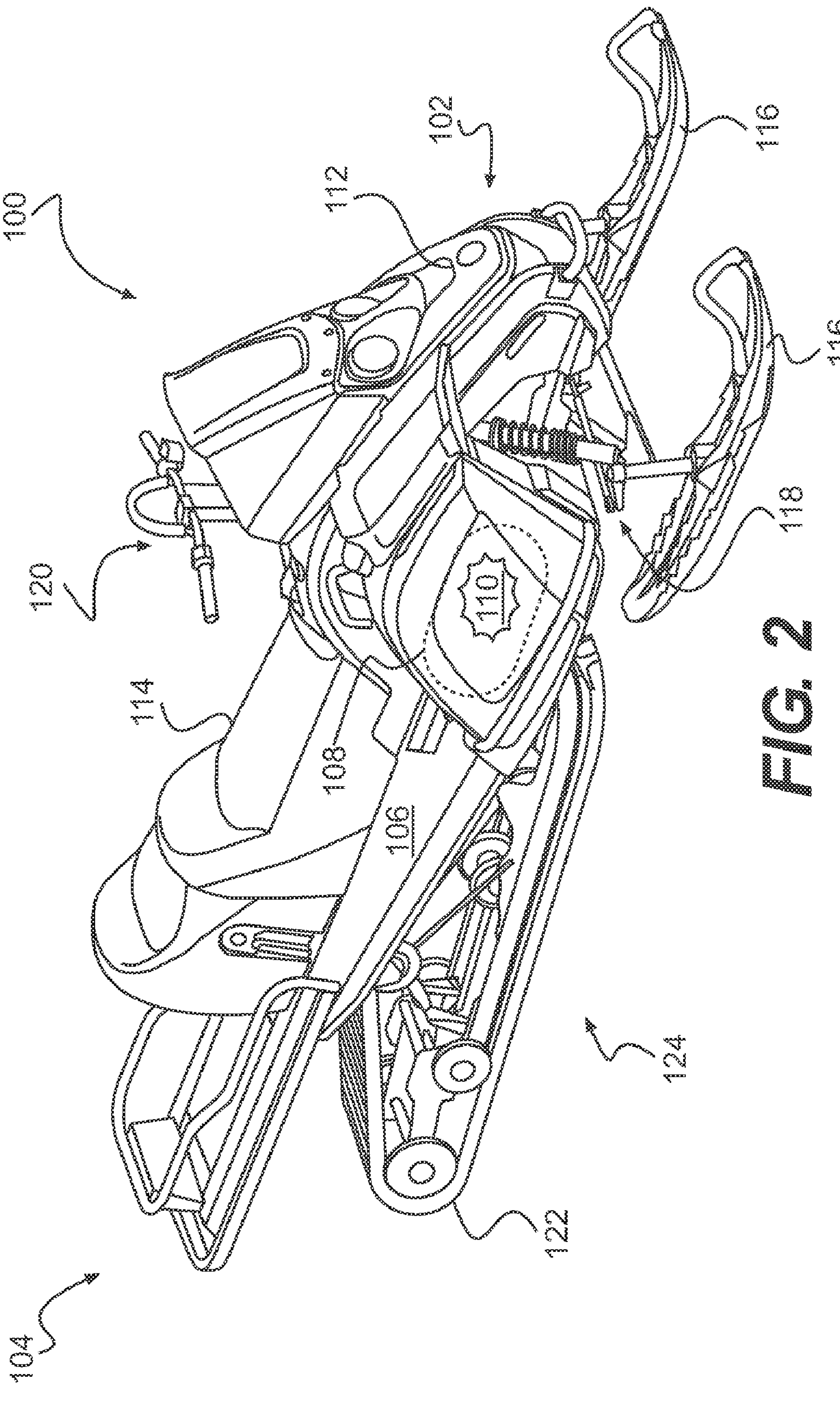


FIG. 2

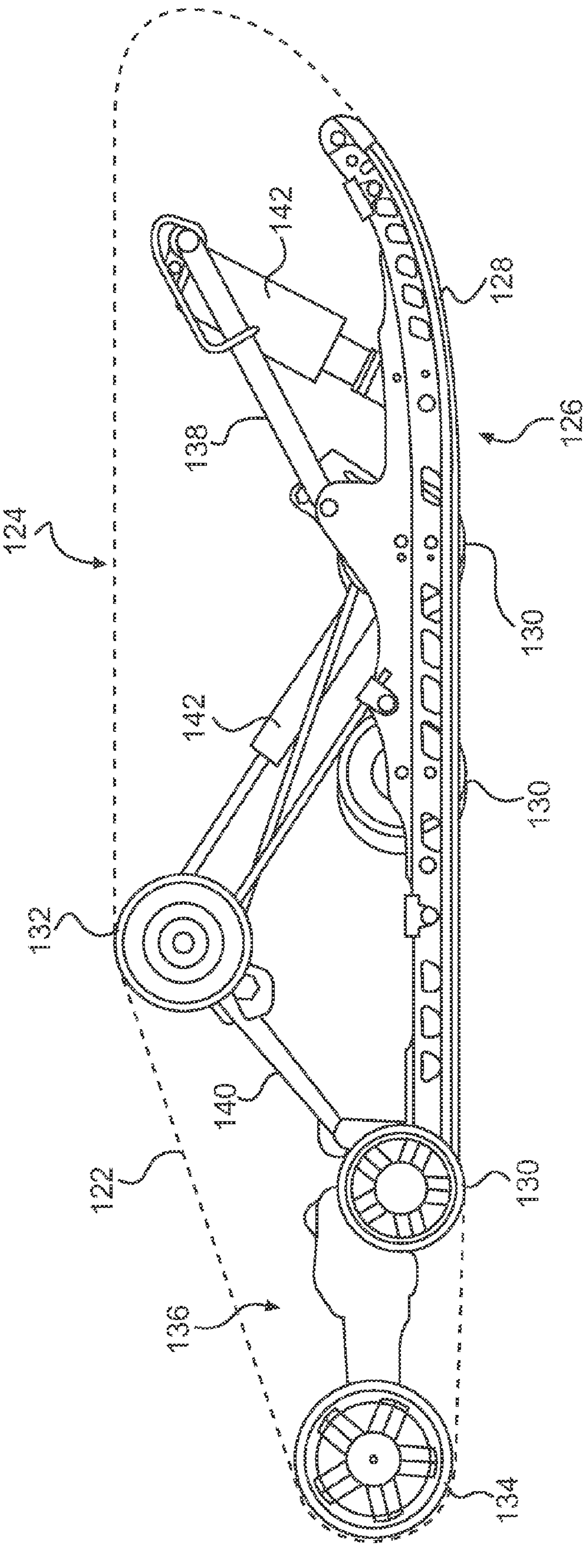


FIG. 3

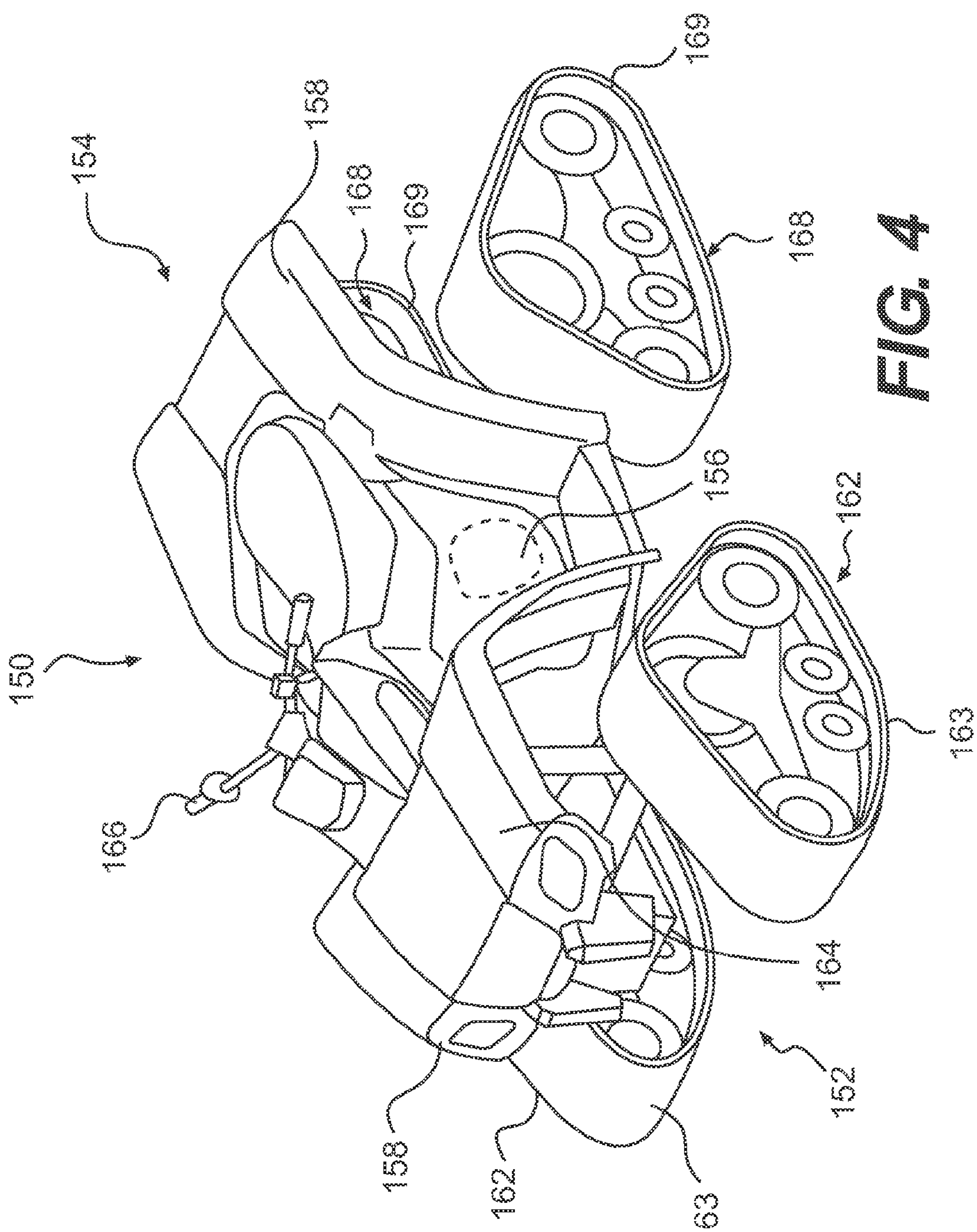


FIG. 4

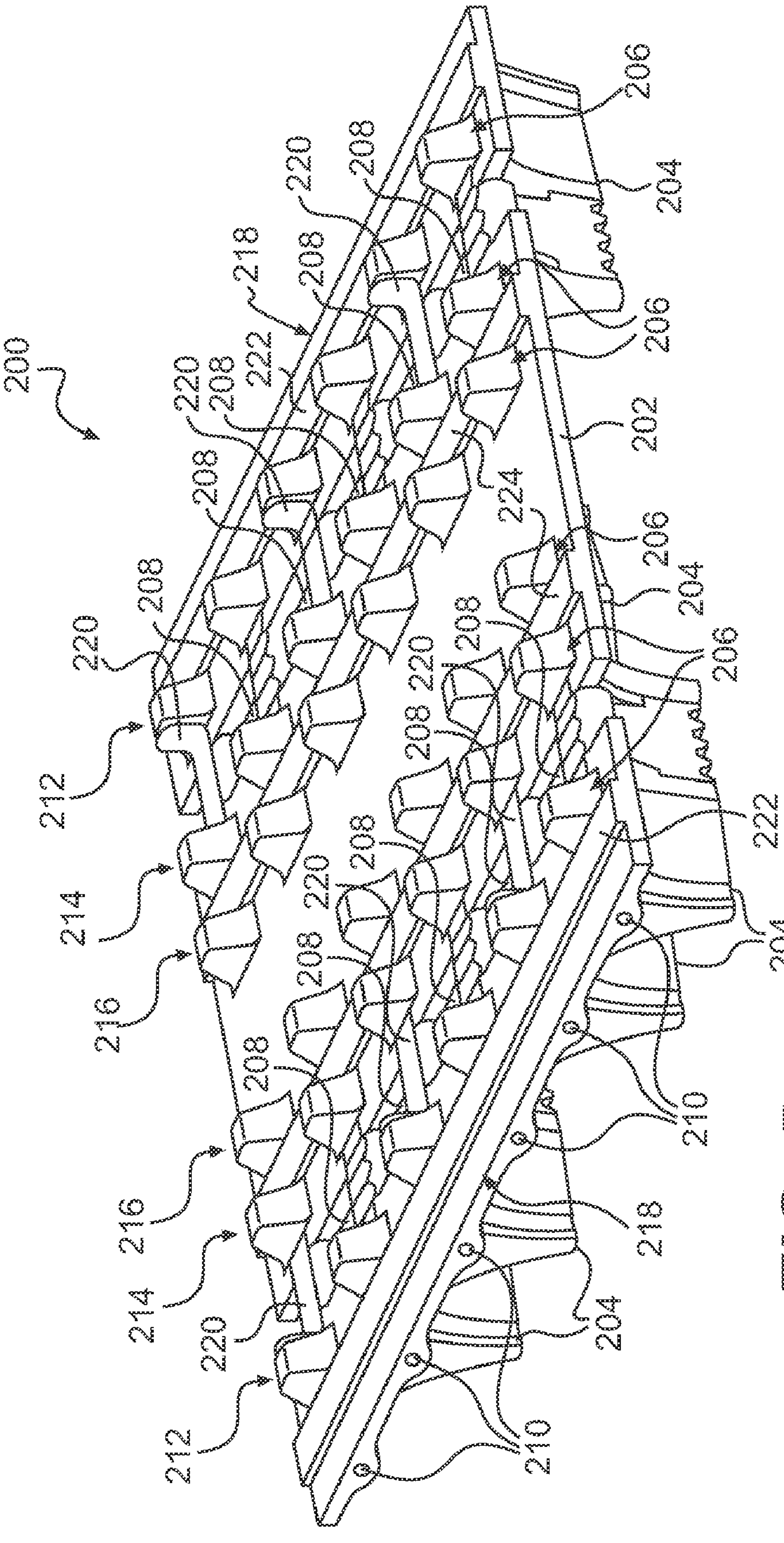
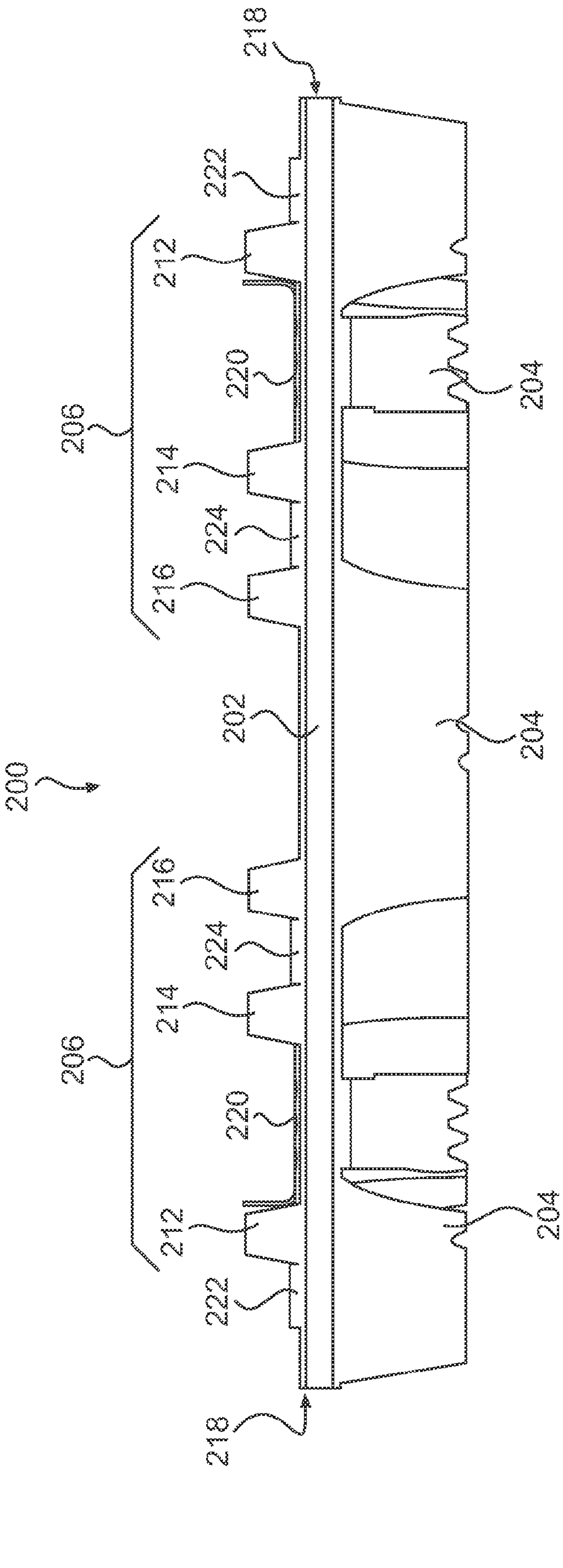


FIG. 5


218
222
212
206
220
214
224
216
202
200
204
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206
220
212
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222
218

FIG. 6

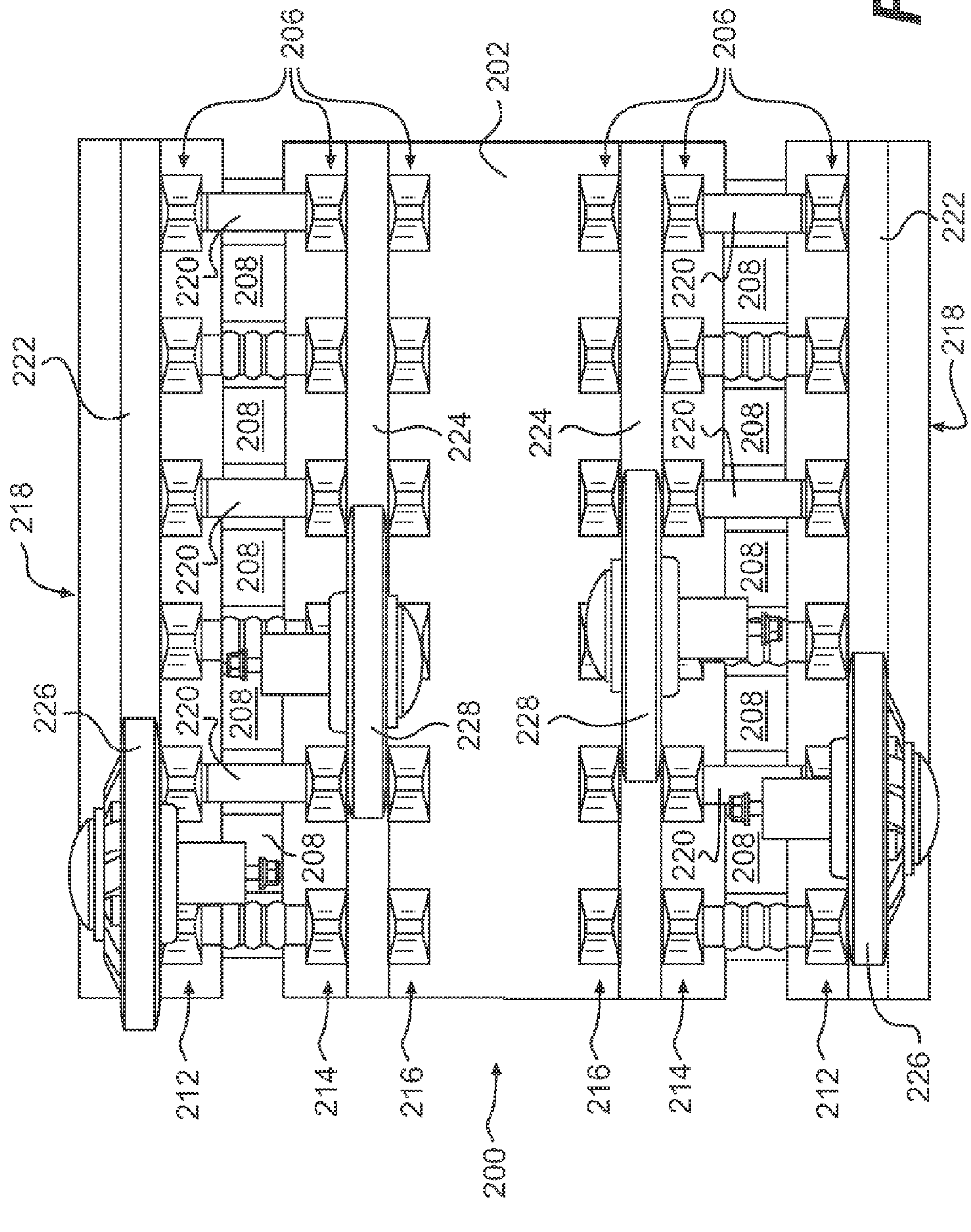
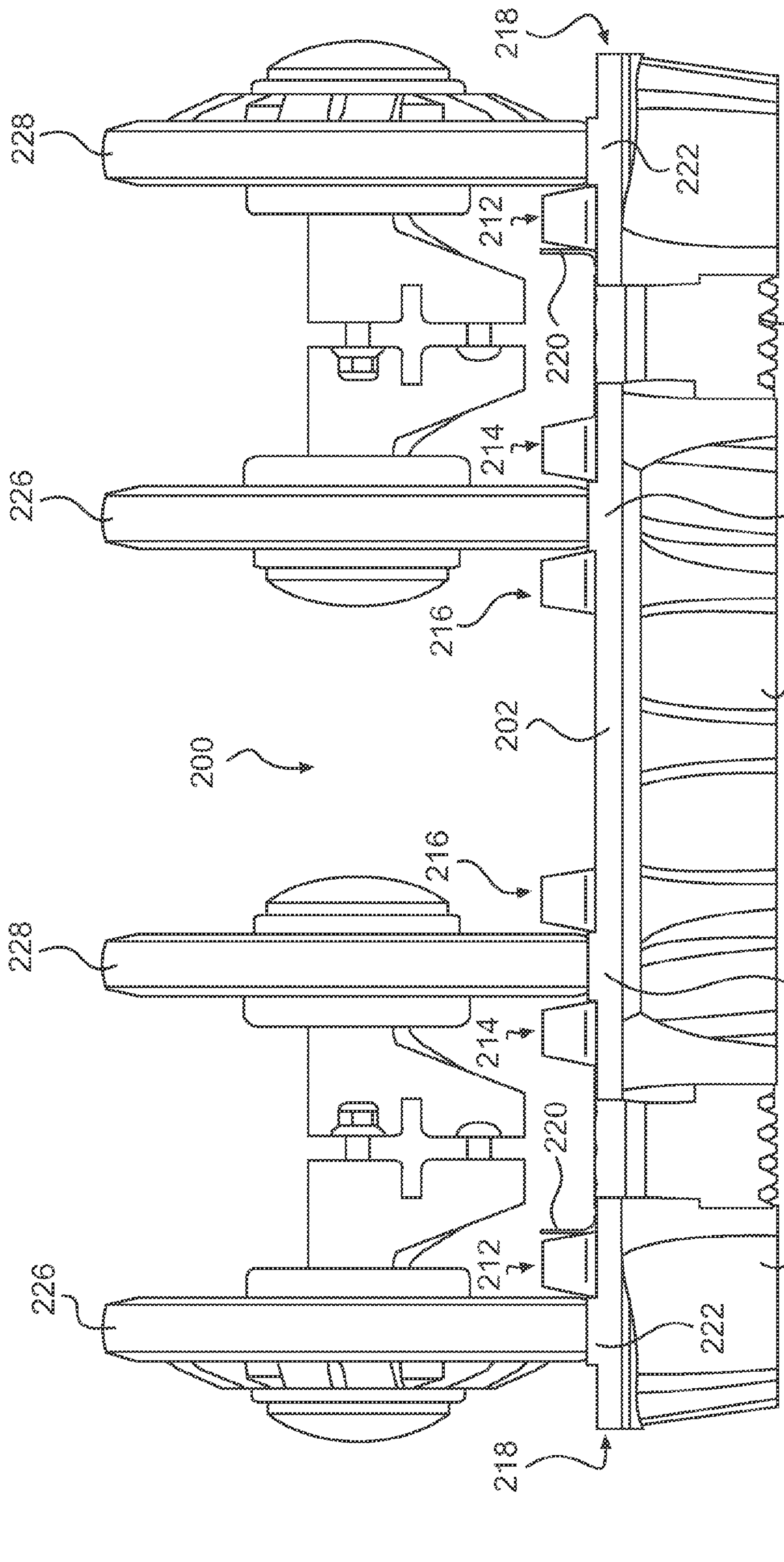


FIG. 7


218
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222
212
220
204
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202
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204
212
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222
218

FIG. 8

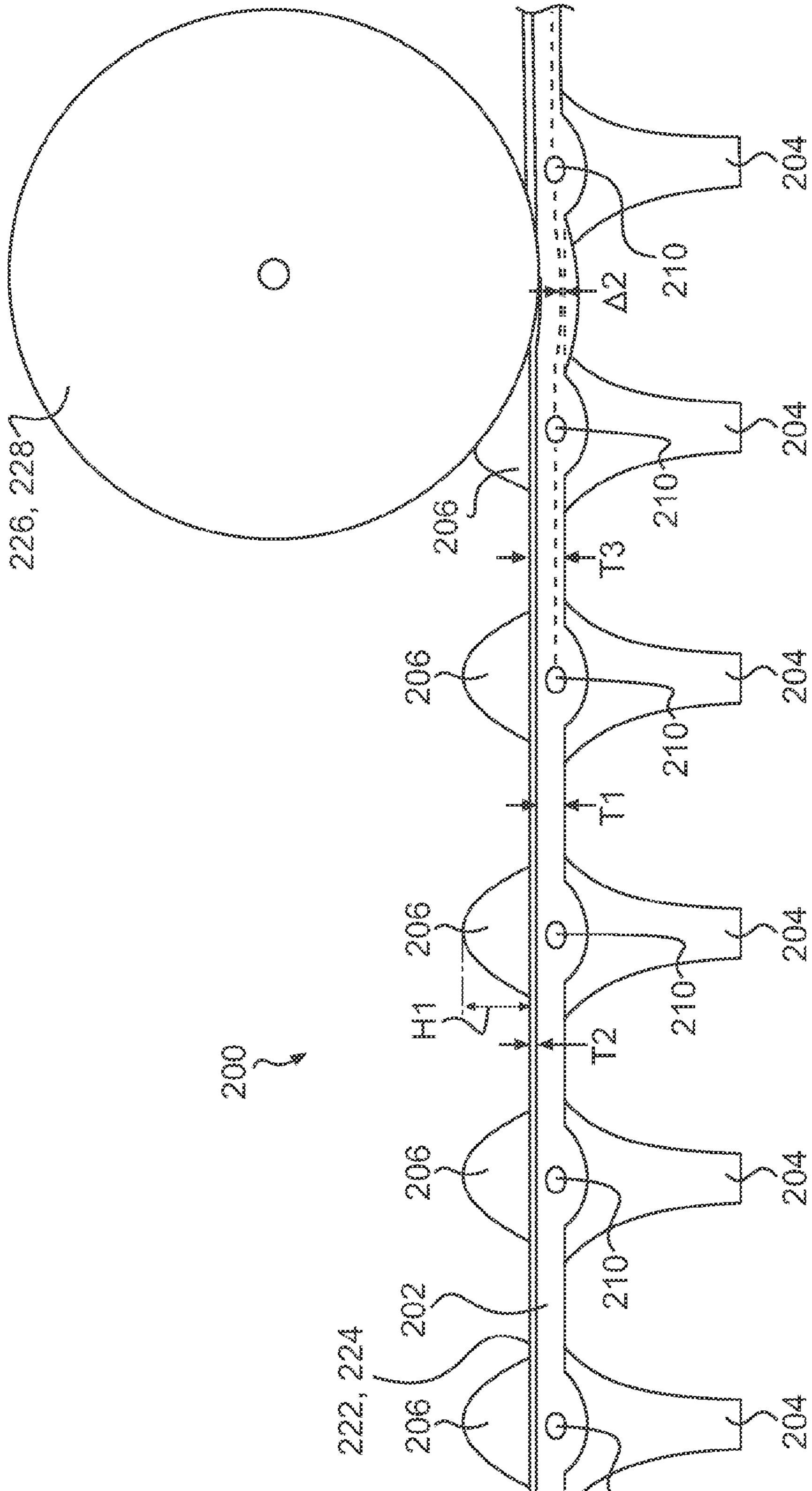
226, 228
206
T3
Δ2
210
204
206
T1
210
204
200
H1
T2
206
210
204
202
222, 224
206
210
204

FIG. 9

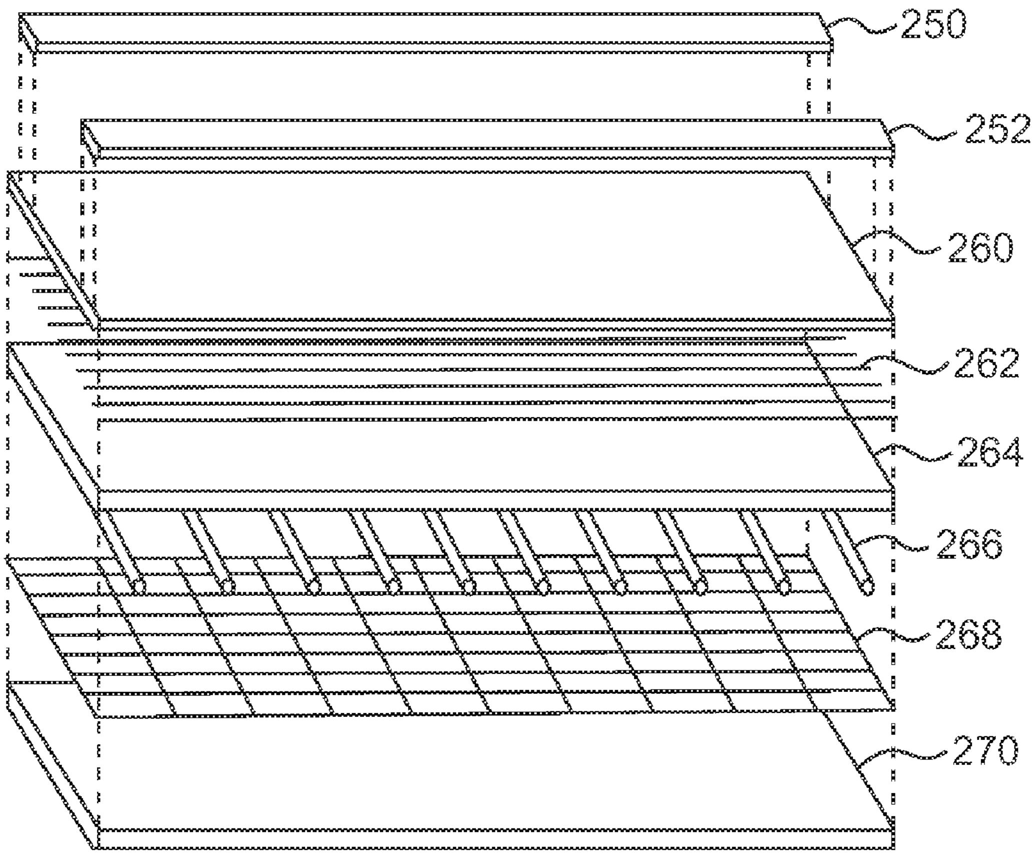

FIG. 10

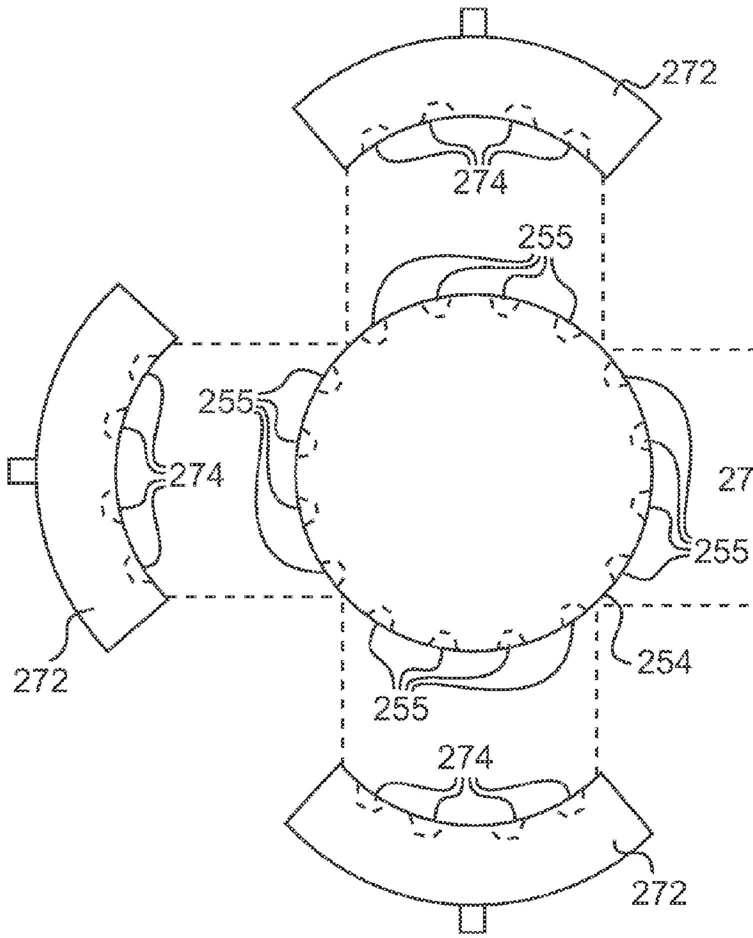
272
274
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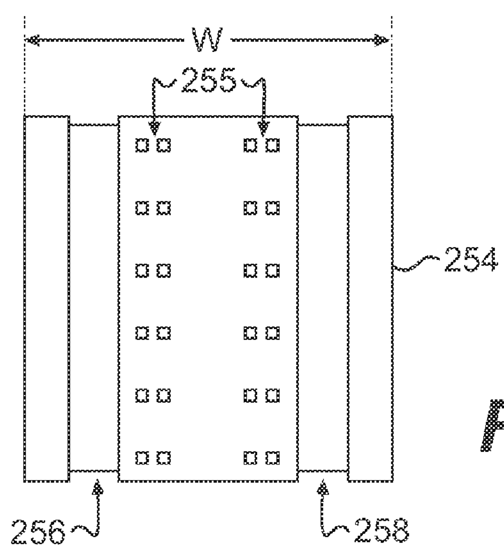
FIG. 11


W
255
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256
258

FIG. 12

VEHICLE TRACK AND TRACK SYSTEM

FIELD OF THE INVENTION

[0001] The present invention relates to vehicle tracks and track systems used for driving vehicles.

BACKGROUND OF THE INVENTION

[0002] Tracked vehicles such as snowmobiles drivingly engage the ground through one or more tracks. As shown in FIG. **1**, such a track **2** typically has a belt **4** with a plurality of terrain lugs **6** on an outer side thereof and a plurality of drive lugs **8** on an inner side thereof. Occasionally, rods **10** are disposed transversely inside the belt **4** to increase the rigidity of the track **2**. The terrain lugs **6** are designed to engage the ground, apply traction, and propel the vehicle.

[0003] One or more drive sprockets (not shown), which are operatively connected to an engine of the vehicle, have teeth that engage the drive lugs **8** to drive the track **2**. Wheels, such as wheel **12**, are typically provided in a track system on the inner side of the belt **4** to help keep the track **2** moving in its desired path. As the track **2** passes under the wheels **12** noise is generated. The wheels **12** apply pressure on the belt **4** causing in to deflect by an amount Al when one of the wheels **12** is in an area free of lugs **6**, **8**, as shown in FIG. **1**. However, when one of the wheels **12** reaches the area of the belt **4** where a terrain lug **6**, and a drive lug **8** (and a rod **10**) is located, since the belt **4** is much stiffer in that area, the belt cannot deflect as much. This results in the wheel **12** impacting that area of the belt **4** and the impact generates noise. Following the impact, the wheel **12** may also lose contact with the belt **4** and the impact when it makes contact with the belt **4** again also generates noise.

[0004] One way to reduce the noise generated in this manner consists in staggering the wheels **12** such that not all of the wheels impact the stiffer areas of the belt **4** at the same time. Although this reduces the amplitude of the noise, it increases the frequency of the noise since more impacts occur.

[0005] Therefore, there is a need for a track and a track system that generates less noise in operation.

SUMMARY OF THE INVENTION

[0006] It is an object of the present invention to ameliorate at least some of the inconveniences present in the prior art.

[0007] It is also an object of the present invention to provide a track having strips on an inner side of a belt for engaging wheels of a track system.

[0008] It is another object of the present invention to provide a track system having a track with strips on an inner side of a belt and wheels engaging the strips.

[0009] By adding strips on the inner side of the track for the wheels of the track system to roll over, the thickness of the track where the strips are located is increased. This results in the track deflecting less when one of the wheels is in an area free of lugs than if no strips were provided. The strips also provide cushioning in areas of the belt where a terrain lug, and a drive lug (and a rod) is located. Therefore, the decreased deflection between the lugs and the increased cushioning at the lugs result in a more stable travel of the wheels over the inner side of the track, which in turn reduces the impacts between the wheels and the track, reduces the likelihood of the wheels leaving the track, and therefore reduces the noise generated.

[0010] In one aspect, the invention provides a vehicle track having a belt having an inner side and an outer side, a plurality of terrain lugs distributed circumferentially about the outer side of the belt, and a plurality of drive lugs distributed circumferentially about the inner side of the belt. A first strip is disposed on the inner side of the belt. The first strip extends along an entire circumference of the inner side of the belt. The first strip is configured for engaging at least one wheel of a track system when the track is in use with the track system. A second strip is disposed on the inner side of the belt. The second strip is laterally spaced from the first strip and extends along an entire circumference of the inner side of the belt. The second strip is configured for engaging at least one other wheel of the track system when the track is in use with the track system.

[0011] In an additional aspect, the belt is a joint-less belt forming a closed-loop.

[0012] In a further aspect, the first and second strips have a substantially equal thickness across their entire lengths.

[0013] In an additional aspect, the thickness of each of the first and second strips is less than a thickness of the belt.

[0014] In a further aspect, the thickness of each of the first and second strips is less than a height of the plurality of drive lugs.

[0015] In an additional aspect, the plurality of drive lugs includes: a first set of drive lugs distributed circumferentially and in lateral alignment about the inner side of the belt, and a second set of drive lugs distributed circumferentially and in lateral alignment about the inner side of the belt. The second set of drive lugs is laterally spaced from the first set of drive lugs. The first strip is disposed laterally between the first set of drive lugs and a first lateral edge of the belt. The second strip is disposed laterally between the second set of drive lugs and a second lateral edge of the belt.

[0016] In a further aspect, the plurality of drive lugs also includes: a third set of drive lugs distributed circumferentially and in lateral alignment about the inner side of the belt, and a fourth set of drive lugs distributed circumferentially and in lateral alignment about the inner side of the belt. The third set of drive lugs is disposed laterally between the first and second sets of drive lugs. The fourth set of drive lugs is disposed laterally between the second and third sets of drive lugs. The track also has a third strip disposed on the inner side of the belt, and a fourth strip disposed on the inner side of the belt. The third strip extends along an entire circumference of the inner side of the belt laterally between the first and third sets of drive lugs. The fourth strip extends along an entire circumference of the inner side of the belt laterally between the second and fourth sets of drive lugs.

[0017] In an additional aspect, the first and second strips are formed integrally with the belt.

[0018] In a further aspect, the first and second strips are made of a first material, and the belt is made of a second material. A hardness of the first material is less than a hardness of the second material.

[0019] In another aspect, the invention provides a vehicle track system having a vehicle track. The vehicle track includes a belt having an inner side and an outer side, a plurality of terrain lugs distributed circumferentially about the outer side of the belt, and a plurality of drive lugs distributed circumferentially about the inner side of the belt. A first strip is disposed on the inner side of the belt. The first strip extends along an entire circumference of the inner side of the belt. A second strip is disposed on the inner side of the belt.

The second strip is laterally spaced from the first strip and extends along an entire circumference of the inner side of the belt. The vehicle track system also has a first wheel engaging the first strip and a second wheel engaging the second strip.

[0020] In a further aspect, the belt is a joint-less belt forming a closed-loop.

[0021] In an additional aspect, the first and second strips have a substantially equal thickness across their entire lengths.

[0022] In a further aspect, the thickness of each of the first and second strips is less than a thickness of the belt.

[0023] In an additional aspect, the thickness of each of the first and second strips is less than a height of the plurality of drive lugs.

[0024] In a further aspect, the plurality of drive lugs includes: a first set of drive lugs distributed circumferentially and in lateral alignment about the inner side of the belt, and a second set of drive lugs distributed circumferentially and in lateral alignment about the inner side of the belt. The second set of drive lugs is laterally spaced from the first set of drive lugs. The first strip is disposed laterally between the first set of drive lugs and a first lateral edge of the belt. The second strip is disposed laterally between the second set of drive lugs and a second lateral edge of the belt.

[0025] In an additional aspect, the plurality of drive lugs also includes: a third set of drive lugs distributed circumferentially and in lateral alignment about the inner side of the belt, and a fourth set of drive lugs distributed circumferentially and in lateral alignment about the inner side of the belt. The third set of drive lugs is disposed laterally between the first and second sets of drive lugs. The fourth set of drive lugs is disposed laterally between the second and third sets of drive lugs. The track system also has a third strip disposed on the inner side of the belt, and a fourth strip disposed on the inner side of the belt. The third strip extends along an entire circumference of the inner side of the belt laterally between the first and third sets of drive lugs. The fourth strip extends along an entire circumference of the inner side of the belt laterally between the second and fourth sets of drive lugs. A third wheel engages the third strip. A fourth wheel engages the fourth strip.

[0026] In a further aspect, the first and second strips are formed integrally with the belt.

[0027] In an additional aspect, the first and second strips are made of a first material, and the belt is made of a second material. A hardness of the first material is less than a hardness of the second material.

[0028] In a further aspect, the track system is in combination with a snowmobile.

[0029] In an additional aspect, the track system is in combination with an all-terrain vehicle.

[0030] For purposes of this application, the term "belt" refers to a continuous band of flexible material for transmitting motion and power. The term "strip" refers to a piece of material that is narrower than it is long.

[0031] Embodiments of the present invention each have at least one of the above-mentioned objects and/or aspects, but do not necessarily have all of them. It should be understood that some aspects of the present invention that have resulted from attempting to attain the above-mentioned objects may not satisfy these objects and/or may satisfy other objects not specifically recited herein.

[0032] Additional and/or alternative features, aspects, and advantages of embodiments of the present invention will become apparent from the following description, the accompanying drawings, and the appended claims.

BRIEF DESCRIPTION OF THE DRAWINGS

[0033] For a better understanding of the present invention, as well as other aspects and further features thereof, reference is made to the following description which is to be used in conjunction with the accompanying drawings, where:

[0034] FIG. **1** is a schematic side view of a portion of a prior art vehicle track system;

[0035] FIG. **2** is a perspective view, taken from a front, right side, of a snowmobile combined with a track system according to the present invention;

[0036] FIG. **3** is a right side view of the track system of the snowmobile of FIG. **2** with the track shown schematically;

[0037] FIG. **4** is a perspective view, taken from a front, left side, of an all-terrain vehicle combined with track systems according to the present invention;

[0038] FIG. **5** is a perspective view of a portion of a track according to the present invention;

[0039] FIG. **6** is a transverse cross-sectional view of the portion of track of FIG. **5**;

[0040] FIG. **7** is a top view of a portion of a track system including the portion of track of FIG. **5**;

[0041] FIG. **8** is an end view of the portion of track system of FIG. **7**;

[0042] FIG. **9** is a schematic side view of the portion of track system of FIG. **7** with features removed for clarity;

[0043] FIG. **10** is a schematic illustration of a layering of material for making a track according to the present invention;

[0044] FIG. **11** is a schematic end view of moulds for making a track from the materials shown in FIG. **10**; and

[0045] FIG. **12** is a schematic side view of the cylinder of the moulds of FIG. **11**.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0046] Although the present invention will be described in combination with a snowmobile and an all-terrain vehicle, it should be understood that it could be used with other types of tracked vehicles.

[0047] Referring to FIG. **2**, a snowmobile **100** has a front end **102** and a rear end **104**. The snowmobile **100** has a frame including a tunnel portion **106** and an engine cradle portion **108**. An engine **110** (schematically illustrated) is supported by the engine cradle portion **108**. A number of fairings **112** are supported on the frame to protect components mounted to the frame and to provide aesthetic appeal. A seat **114** is provided above the tunnel **106** for accommodating a rider and, optionally, one or more passengers.

[0048] A pair of skis **116** at the front end **102** of the snowmobile **100** are connected to the frame via a suspension system **118**. A steering assembly **120** is provided generally forward of the seat **114**, and is connected to the skis **116** in a known manner such that turning the steering assembly **120** turns the skis **116** to steer the snowmobile **100**.

[0049] At the rear end **104** of the snowmobile **100**, a track system **124** including a track **122** is provided. The track **122** is partially disposed in the tunnel portion **106** of the frame, and is driven by the engine **110** via a transmission (not shown) to propel the snowmobile **100**.

[0050] As shown in FIG. **3**, the track system **124** includes a slide rail assembly **126**. The slide rail assembly **126** includes two parallel slide rails **128** (one on each side) that generally position and guide the track **122** (schematically shown in FIG. **3**). The slide rails **128** typically have a curved forward end to follow the track **122** and a flat rear portion to ensure proper traction between the track **122** and the ground. The slide rails **128** typically include a lower sliding surface made of polyethylene to reduce contact friction between the slide rails **128** and the track **122**. One or more pairs of lower wheels **130** and one or more pairs of upper wheels **132** engage the track **122** to further guide the track **122**. One or more idler wheels **134** are supported on a rail extension assembly **136** to further guide the track **122**.

[0051] The track system **124** is connected to the tunnel portion **106** via a front suspension arm **138** and a rear suspension arm **140**. The front and rear suspension arms **138**, **140** are pivotally connected to the tunnel **106** at their upper ends, and pivotally connected to the slide rail assembly **126** at their lower ends. Two shock absorber assemblies **142** bias the slide rail assembly **126** downward against the track **122** to ensure proper contact therebetween. It should be understood that alternative track systems constructed with a single shock absorber assembly **142** or with more than two shock absorber assemblies **142** are contemplated. It is also contemplated that the snowmobile could have two track systems **124** disposed side by side.

[0052] Turning now to FIG. **4**, an all-terrain vehicle (ATV) **150** has a front end **152** and a rear end **154**. The ATV **150** has a frame (not shown). An engine **156** is supported by the frame. A number of fairings **158** are supported on the frame to protect components mounted to the frame and to provide aesthetic appeal. A seat **160** is provided above the engine **156** for accommodating a rider and, optionally, one or more passengers.

[0053] Although ATVs are generally provided with wheels, the ATV **150** has track systems instead. A pair of track systems **162** are provided at the front end **152** of the ATV **150**. The track systems **162**, including tracks **163**, are connected to the frame via a suspension system **164**. A steering handlebar **166** is provided generally forward of the seat **160**, and is connected to the track systems **162** in a known manner such that turning the steering handlebar **166** turns the track systems **162** to steer the ATV **150**. At the rear end **154** of the ATV **150**, a pair of track systems **168**, including tracks **169**, are connected to the frame via a suspension system (not shown). The tracks **163**, **169** are driven by the engine **156** via a transmission (not shown) to propel the ATV **150**.

[0054] The track systems **162** and **168** each include a plurality of wheels therein to engage the tracks **163**, **169** respectively to guide the tracks **163**, **169**. Additional details regarding the construction of an ATV having track systems instead of wheels, such as ATV **150**, are described in International Patent Publication number WO 2006/066406 A1, published on Jun. 29, 2006, the entirety of which is incorporated herein by reference. It should be noted that, although the track systems described in this publication can be used for the ATV **150** described herein, that the tracks **163**, **169** used in ATV **150** differ from those of the publication as will be described below. It should also be noted that other embodiments of track systems are contemplated.

[0055] Turning now to FIGS. **5** to **9**, a track **200** according to the present invention will be described. It should be understood that track **200** is only an exemplary track and that other embodiments of tracks are contemplated. Some of the contemplated modifications to track **200** will be described below. Track **200** is well suited to be used as track **122** of snowmobile **100** described above. Track **200** can also be used as tracks **163** and **169** of the ATV **150** described above, or could be modified, as would be understood by those skilled in the art, to properly operate in the particular track systems **162** and **168** being used without departing from the scope of the present invention.

[0056] Although FIGS. **5** to **9** only show a representative portion of the track **200**, it should be understood that track **200** actually forms a closed-loop like in tracks **122**, **163**, and **169** described above. The track **200** is preferably joint-less and is formed as will be described below in more detail.

[0057] Track **200** includes a belt **202**. Terrains lugs **204** are disposed circumferentially about the outer side of the belt **202**. The terrain lugs **204** provide traction to the track **200**. The specific distribution pattern and dimensions of the terrain lugs **204** will vary depending on the application and desired characteristics of the track **200**. Drive lugs **206** are disposed circumferentially about the inner side of the belt **202**. The drive lugs **206** are configured to be engaged by laterally extending teeth of drive sprockets (not shown) to drive the track **200**. Apertures **208** are formed in the belt **202** along the circumference of the belt **202** between drive lugs **206**. The apertures **208** are configured to be engaged by radially extending teeth of the drive sprockets to drive the track **200**. It is contemplated that the sprockets used could have both laterally and radially extending teeth or only one type of teeth. It is also contemplated that the belt could have no apertures **208**. It is further contemplated that only some of the sets of drive lugs **206** (described below) could be engaged by the sprockets and that more or less sets of drive lugs **206** could be used.

[0058] A plurality of rods **210**, which are preferably made of metal, extend laterally inside the belt **202** at regular intervals. The rods **210** increase the rigidity of the track **200**. Each rod **210** is preferably circumferentially aligned with a terrain lug **204**, however it is contemplated that more or less rods **210** could be used. It is also contemplated that no rods **210** could be used.

[0059] Additional details of the track **200** will now be described. For simplicity only one lateral half of the track **200** will be described. It should be understood that the other half is a mirror image thereof.

[0060] There are three sets **212**, **214**, **216** of drive lugs **206** on each lateral half of the track **200**. In each set **212**, **214**, or **216**, the drive lugs **206** are laterally aligned (i.e. in line) and are disposed at regular intervals circumferentially. Preferably, each drive lug **206** of one set **212**, **214**, or **216** is circumferentially aligned with a drive lug **206** of the two other sets **212**, **214**, or **216**. The outer set **212** is disposed near a lateral edge **218** of the belt **202**, the inner set **216** is disposed near a central portion of the belt **202**, and the central set **214** is disposed laterally between the inner and outer sets **212**, **216**.

[0061] The apertures **208** are disposed laterally between the outer and central sets **212**, **214** of drive lugs **206** and are circumferentially offset from the drive lugs **206** of these sets. Metallic cleats **220** are connected on every second portion of the inner side of the belt **202** located between the apertures **208**. It is contemplated that cleats **220** could be connected on every portions of the inner side of the belt **202** located between the apertures **208**. It is also contemplated that the cleats **220** could be connected at greater intervals (every third or fourth portion for example). In the case where the track **200**

is used with the snowmobile **100** described above, the slide rail **128** slides over the cleats **220** on the portion of the cleats located laterally between the apertures **208** and the outer set **212** of drive lugs **206**. The side of slide rail **128** also slides against the vertical portion of the cleats **220** disposed adjacent the outer set **212** of drive lugs. This helps maintain the lateral alignment of the track **202** in the track system **124**.

[0062] An outer strip **222** of material is disposed on the inner side of the belt **202** laterally between the outer set **212** of drive lugs **206** and the lateral edge **218** of the belt **202**. An inner strip **224** of material is disposed on the inner side of the belt **202** laterally between the central set **214** of drive lugs **206** and the inner set **216** of drive lugs **206**. The strips **222**, **224** each extend along an entire circumference of the inner side of the belt **202** so as to form a closed-loop.

[0063] As seen in FIGS. **7** and **8**, wheels **226**, **228** of a track system including the track **200** engage the strips **222**, **224** respectively so as to roll on the strips **222**, **224**. As seen in FIG. **8**, the strips **222**, **224** are slightly wider than a contact surface of the wheel **226**, **228**. It should be understood that although only one wheel **226**, **228** is shown as engaging its respective strip **226**, **228** that more than one wheel can engage each strip **222**, **224**. For example, when the track **122** of the track system **124** shown in FIG. **3** has the same construction as track **200**, the leftmost (as shown in FIG. **3**) lower wheel **130**, the idler wheel **134**, and the upper wheel **132** engage the outer strip **222**, and the central lower wheel **130**, and rightmost lower wheel **130** engage the inner strip **224**. Although it is preferred that each of the wheels **226**, **228** of the track system engage one of the strips **222**, **224**, it is contemplated that some may not. It is also contemplated that more or less strips could be used depending on the arrangement of the wheels.

[0064] As seen in FIG. **5**, the strips **222**, **224** have a substantially equal thickness across their entire lengths (in the circumferential direction of belt **202**) and have a rectangular cross-section as seen in FIG. **6**. It is contemplated that the strips **222**, **224** could have other shapes of cross-section, such as, for example, semi-circular or trapezoidal. As seen in FIG. **9**, by adding strips **222**, **224** of a thickness T**2**, as measured from the inner side of the belt **202** to the top of the strips **222**, **224**, to the belt **202** having a thickness T**1**, the track **202** effectively has a thickness T**3** where strips **222**, **224** are located. The increased thickness of the track **200** at the location of the strips **222**, **224** results in a stiffer track **200** in the portions between the lugs **204**, **206**. This causes the track **200** to deflect (due to the wheels **226**, **228**) by an amount Δ**2** in these portions of the track **200** that is less than the amount Δ**1** by which a track having the same belt thickness T**1** but no strips would deflect, such as track **2** of FIG. **1**. The strips **222**, **224** also provide cushioning for the wheels **226**, **228** when they go over the portions of the track **200** having lugs **204**, **206** (and rods **210**), thus reducing the impact of the wheels **226**, **228** with these portions. These combined effects result in a reduction in the noise generated by the track **200** and the wheel **226**, **228** when compared with a track having the same general characteristics but not strips.

[0065] The thicker the strips **222**, **224**, the more cushioning and stiffening they will provide, however if the strips **222**, **224** are too thick, then the track **200** will become to stiff to easily bend around the track system. As can be seen in FIG. **9**, the thickness T**2** of the strips **222**, **224** is less than a height H**1** of the drive lugs **206**, as measured from the inner side of the belt **202** to the top of the drive lugs **206**. The thickness T**2** of the strips **222**, **224** is also less than the thickness T**1** of the belt **202**. For example for a 345.4 cm (136 in.) long track having a belt thickness T**1** of approximately **5** mm, the strip thickness T**2** is approximately 2 mm. However, it will be understood that the strip thickness T**2** best suited for a particular track will depend on the track's length, width, material, belt thickness, terrain and drive lugs patterns and dimensions, the presence or absence of rods, and the characteristics of the track system in which the track will be used.

[0066] In order to avoid applying stress on the track **200**, it is preferable that the wheels **226**, **228** be moved away from the inner surface of the belt **202** by an amount equal to the thickness T**2** of the strips **222**, **224** relative to their positions if no strips were present (as in FIG. **1**).

[0067] The belt **202** is preferably joint-less and forms a closed-loop. The belt **202**, strips **222**, **224**, terrain lugs **204**, and drive lugs **206** are also preferably integrally formed. However it is contemplated that the strips **222**, **224**, terrain lugs **204**, and drive lugs **206** could be bonded or fastened to the belt **202** is some other way.

[0068] Turning now to FIGS. **10** to **12**, an exemplary method of manufacturing a rubber track having a joint-less belt forming a closed-loop and a belt, strips, terrain lugs, and drive lugs that are integrally formed will be described. For simplicity, the track only has two strips **250**, **252** and four sets of drive lugs, but it should be understood that the same method could be used for manufacturing the track **200** described above or other tracks having strips for engaging the wheels of a track system.

[0069] The process begins by placing layers of material (shown in FIG. **10**) having substantially the length of the desired track around a cylinder **254** (FIGS. **11**, **12**). The cylinder **254** has a circumference corresponding to the desired track length, a width W (FIG. **12**) corresponding to the desired track width, and a pattern of recesses **255** corresponding to the desired pattern of drive lugs of the finished track. The rubber strips **250**, **252** are first placed inside grooves **256**, **258** in the cylinder **254**. A first layer **260** of rubber is then wrapped around the cylinder **254** and strips **250**, **252**. A layer of strings **262** is then wrapped around the first layer **260**. The layer of strings **262** reinforces the finished track in the circumferential direction. A second layer **264** of rubber is then wrapped around the layer of strings **262**. In the case where the finished track should have metallic rods laterally disposed in the belt of the track to increased the rigidity of the track, metallic rods **266** are then placed circumferentially around the second layer **264** of rubber **264**. A layer of mesh fabric **268** is then wrapped around the metallic rods **266** or the second layer **264** of rubber as the case may be. The layer of mesh fabric **268** reinforces the finished track in the directions resulting from the mesh pattern as would be understood by those skilled in the art. A third layer **270** of rubber is finally wrapped around the layer of mesh fabric **268**. It should be understood that more or less layers could be used and that other types of layers could be used.

[0070] Once all the layers of material have been wrapped around the cylinder **254**, hydraulically actuated moulds **272** are pressed against the layers and the cylinder **254**. The moulds **272** each include a portion of a pattern of recesses **274** corresponding to the desired pattern of terrain lugs of the finished track. The moulds **272**, layers of material, and cylinder **254** are then heated in an oven. The heat causes the rubber to melt. The pressure applied by the moulds **272** causes the melted rubber to flow inside the patterns of recesses **255** and **274**. The strips **250**, **252** and the various layers **260**, **264**,

270 of rubber are thus joined together and trap the layers of strings, rods, and mesh fabric **262**, **266**, **268** respectively therein, thereby forming the track. The presence of vulcanizing agents in this process will also increase the strength and resiliency of the rubber. The moulds **272**, track, and cylinder **254** are then allowed to cool down before removing the finished track. Should it be desired that the finished track have apertures like apertures **208** of the track **200** described above, the apertures would be cut in the track once the track has cooled down.

[0071] The above method allows the manufacturing of a track where the type of rubber used for the strips is different from the type of rubber used for the rest of the track. More specifically, the first and second layers **260**, **264** are made of a first type of rubber having a hardness of 70 durometers (on durometer scale A) for example. The strips **250**, **252** are made of a second type of softer rubber (**60** durometers for example) to provide the cushioning for the wheels. The third layer **270** of rubber is made of a third type of harder rubber (**80** durometers for example) since this is the layer forming the terrain lugs that will contact the ground and therefore need to be more resistant. It is contemplated that the first and second layers **260**, **264** of rubber could also be made of different types of rubbers. It is also contemplated that all of the layers of rubber could be made of the same type of rubber.

[0072] In cases where it is desired that the strips of the track be made of the same material as the first layer **260** of rubber, it is not necessary to first place strips **250**, **252** of rubber inside the grooves **256**, **258** of the cylinder **254** as described above. Instead, it is contemplated that when the first layer **260** of rubber melts in the oven, that the melted rubber from this layer could be caused to flow inside the grooves **256**, **258** due to the pressure applied by the moulds **272**, thereby forming the strips, in the same way as the melted rubber is caused to flow into the pattern of recesses **255** to form the drive lugs.

[0073] It should be understood that the above method is only one possible way of manufacturing a track. It should be understood that other methods could be used which use different processes.

[0074] Modifications and improvements to the above-described embodiments of the present invention may become apparent to those skilled in the art. The foregoing description is intended to be exemplary rather than limiting. The scope of the present invention is therefore intended to be limited solely by the scope of the appended claims.

What is claimed is:

1. A vehicle track comprising:

a belt having an inner side and an outer side;

a plurality of terrain lugs distributed circumferentially about the outer side of the belt;

a plurality of drive lugs distributed circumferentially about the inner side of the belt;

a first strip disposed on the inner side of the belt, the first strip extending along an entire circumference of the inner side of the belt, the first strip being configured for engaging at least one wheel of a track system when the track is in use with the track system; and

a second strip disposed on the inner side of the belt, the second strip being laterally spaced from the first strip and extending along an entire circumference of the inner side of the belt, the second strip being configured for engaging at least one other wheel of the track system when the track is in use with the track system.

2. The vehicle track of claim **1**, wherein the belt is a jointless belt forming a closed-loop.

3. The vehicle track of claim **2**, wherein the first and second strips have a substantially equal thickness across their entire lengths.

4. The vehicle track of claim **3**, wherein the thickness of each of the first and second strips is less than a thickness of the belt.

5. The vehicle track of claim **3**, wherein the thickness of each of the first and second strips is less than a height of the plurality of drive lugs.

6. The vehicle track of claim **2**, wherein the plurality of drive lugs includes:

a first set of drive lugs distributed circumferentially and in lateral alignment about the inner side of the belt; and

a second set of drive lugs distributed circumferentially and in lateral alignment about the inner side of the belt, the second set of drive lugs being laterally spaced from the first set of drive lugs;

wherein the first strip is disposed laterally between the first set of drive lugs and a first lateral edge of the belt; and

wherein the second strip is disposed laterally between the second set of drive lugs and a second lateral edge of the belt.

7. The vehicle track of claim **6**, wherein the plurality of drive lugs further includes:

a third set of drive lugs distributed circumferentially and in lateral alignment about the inner side of the belt, the third set of drive lugs being disposed laterally between the first and second sets of drive lugs; and

a fourth set of drive lugs distributed circumferentially and in lateral alignment about the inner side of the belt, the fourth set of drive lugs being disposed laterally between the second and third sets of drive lugs; and

the track further comprises:

a third strip disposed on the inner side of the belt, the third strip extending along an entire circumference of the inner side of the belt laterally between the first and third sets of drive lugs; and

a fourth strip disposed on the inner side of the belt, the fourth strip extending along an entire circumference of the inner side of the belt laterally between the second and fourth sets of drive lugs.

8. The vehicle track of claim **2**, wherein the first and second strips are formed integrally with the belt.

9. The vehicle track of claim **2**, wherein the first and second strips are made of a first material, and the belt is made of a second material; and

wherein a hardness of the first material is less than a hardness of the second material.

10. A vehicle track system comprising:

a vehicle track including:

a belt having an inner side and an outer side;

a plurality of terrain lugs distributed circumferentially about the outer side of the belt;

a plurality of drive lugs distributed circumferentially about the inner side of the belt;

a first strip disposed on the inner side of the belt, the first strip extending along an entire circumference of the inner side of the belt; and

a second strip disposed on the inner side of the belt, the second strip being laterally spaced from the first strip and extending along an entire circumference of the inner side of the belt;

a first wheel engaging the first strip; and
a second wheel engaging the second strip.

11. The vehicle track system of claim **10**, wherein the belt is a joint-less belt forming a closed-loop.

12. The vehicle track system of claim **11**, wherein the first and second strips have a substantially equal thickness across their entire lengths.

13. The vehicle track system of claim **12**, wherein the thickness of each of the first and second strips is less than a thickness of the belt.

14. The vehicle track system of claim **12**, wherein the thickness of each of the first and second strips is less than a height of the plurality of drive lugs.

15. The vehicle track system of claim **11**, wherein the plurality of drive lugs includes:
a first set of drive lugs distributed circumferentially and in lateral alignment about the inner side of the belt; and
a second set of drive lugs distributed circumferentially and in lateral alignment about the inner side of the belt, the second set of drive lugs being laterally spaced from the first set of drive lugs;
wherein the first strip is disposed laterally between the first set of drive lugs and a first lateral edge of the belt; and
wherein the second strip is disposed laterally between the second set of drive lugs and a second lateral edge of the belt.

16. The vehicle track system of claim **15**, wherein the plurality of drive lugs further includes:
a third set of drive lugs distributed circumferentially and in lateral alignment about the inner side of the belt, the third set of drive lugs being disposed laterally between the first and second sets of drive lugs; and
a fourth set of drive lugs distributed circumferentially and in lateral alignment about the inner side of the belt, the fourth set of drive lugs being disposed laterally between the second and third sets of drive lugs; and
the track system further comprises:
a third strip disposed on the inner side of the belt, the third strip extending along an entire circumference of the inner side of the belt laterally between the first and third sets of drive lugs;
a fourth strip disposed on the inner side of the belt, the fourth strip extending along an entire circumference of the inner side of the belt laterally between the second and fourth sets of drive lugs;
a third wheel engaging the third strip; and
a fourth wheel engaging the fourth strip.

17. The vehicle track system of claim **11**, wherein the first and second strips are formed integrally with the belt.

18. The vehicle track system of claim **11**, wherein the first and second strips are made of a first material, and the belt is made of a second material; and
wherein a hardness of the first material is less than a hardness of the second material.

19. The vehicle track system of claim **11**, in combination with a snowmobile.

20. The vehicle track system of claim **11**, in combination with an all-terrain vehicle.

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