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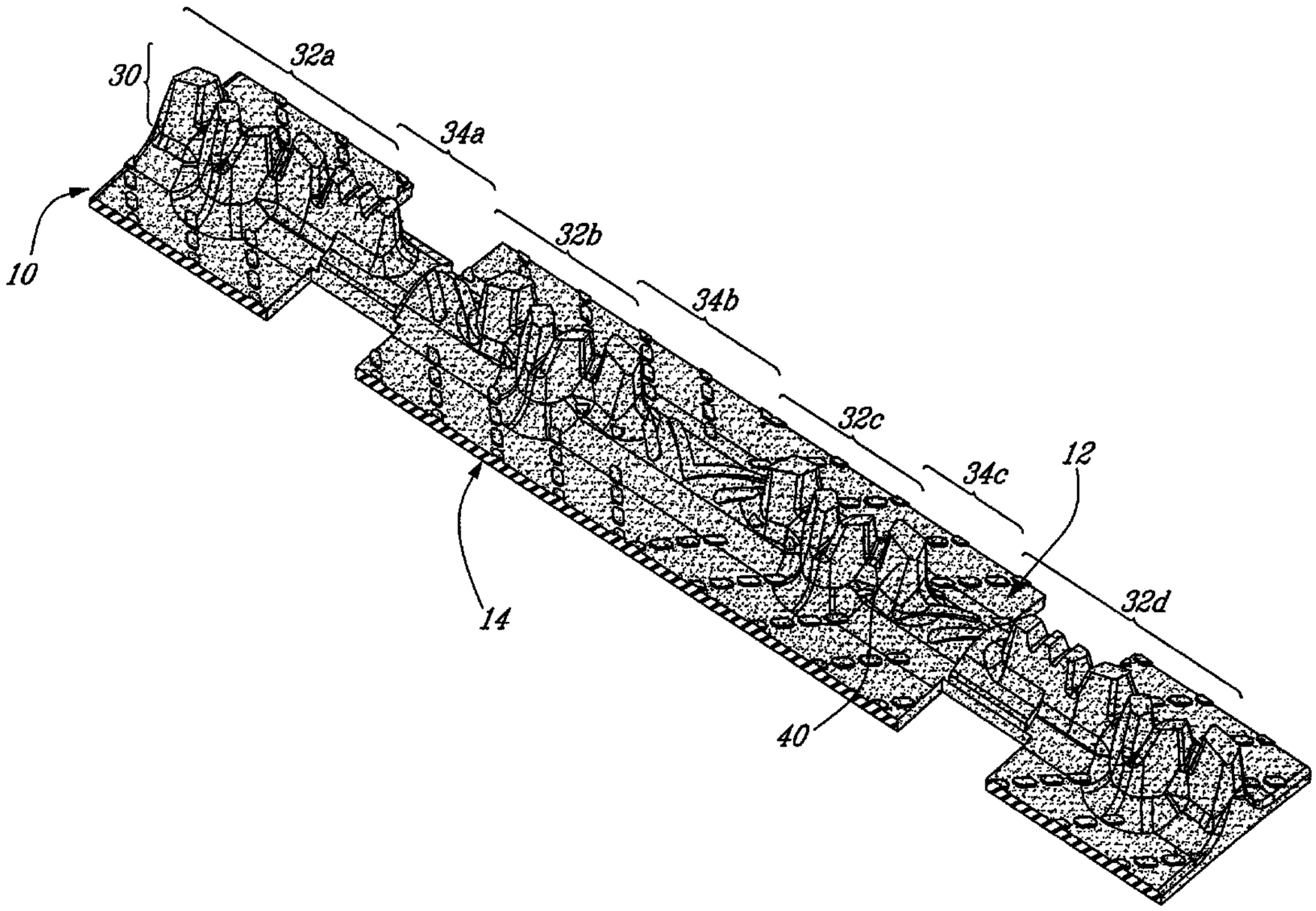
(54) **Titre : COURROIE PORTEUSE A TRACTION ELEVEE**
(54) **Title: HIGH TRACTION TRACK**



(57) **Abrégé/Abstract**:
A snowmobile drive track including an endless body having a ground engaging outer side provided with traction lugs, wherein the traction lugs display an angled outer edge for an increased penetration into the ground and a reduced production of noise.

ABSTRACT OF THE DISCLOSURE

A snowmobile drive track including an endless body having a ground engaging outer side provided with traction lugs, wherein the traction lugs display an angled outer edge for an increased penetration into the ground and a reduced production of noise.

TITLE OF THE INVENTION

High traction track

FIELD OF THE INVENTION

[0001] The present invention relates to a snowmobile drive track. More specifically, the present invention is concerned with a high traction track for snowmobiles.

BACKGROUND OF THE INVENTION

[0002] Snowmobile tracks or tracked recreational vehicles and ATV tracks are formed of an assembly of a molded rubber base having, embedded therein, one or more layers of reinforcing fabric and a series of bars that extend crosswise of the track in central and lateral portions thereof. These crossbar portions display a series of raised profiles, each defining a ground engaging projection or traction lug, which provides traction and control to the track.

[0003] Efforts have been made to provide traction lugs allowing an increased traction of the track, and also to decrease the noise they generate at certain rotational speeds of the endless track.

[0004] There is still a need in the art for high traction tracks.

SUMMARY OF THE INVENTION

[005A] There is provided a track for traction of a snowmobile or ATV. The track is a rubber-based endless track and comprises an inner surface for facing a suspension assembly of the snowmobile or ATV and a ground-engaging outer surface for engaging a ground on which the snowmobile or ATV

travels. The ground-engaging outer surface comprises a plurality of traction projections projecting outwardly in a thickness direction of the track and spaced apart in a longitudinal direction of the track. Each traction projection of the plurality of traction projections comprises an outward edge portion for penetrating into the ground. The outward edge portion comprises a ground-contacting surface which faces and contacts the ground when the traction projection contacts the ground. The ground-contacting surface is inclined relative to the longitudinal direction of the track such that, when the traction projection is viewed along a widthwise direction of the track, the ground-contacting surface defines an angle with respect to the longitudinal direction of the track.

[005B] There is also provided a track for traction of a snowmobile or ATV. The track is a rubber-based endless track and comprises an inner surface for facing a suspension assembly of the snowmobile or ATV and a ground-engaging outer surface for engaging a ground on which the snowmobile or ATV travels. The ground-engaging outer surface comprises a plurality of traction projections projecting outwardly in a thickness direction of the track and spaced apart in a longitudinal direction of the track. Each traction projection of the plurality of traction projections comprises an outward edge portion for penetrating into the ground. The outward edge portion comprises a plurality of ground-contacting surfaces which face and contact the ground when the traction projection contacts the ground. Each ground-contacting surface of the plurality of ground-contacting surface is: (i) inclined relative to the longitudinal direction of the track such that, when the traction projection is viewed along a widthwise direction of the track, the ground-contacting surface defines an angle with respect to the longitudinal direction of the track; and (ii) inclined relative to the widthwise direction of the track such that, when the traction projection is viewed along the longitudinal direction of the track, the ground-contacting surface defines an angle with respect to the widthwise direction of the track.

[005C] There is further provided a track for a tracked vehicle, the track having a ground-engaging surface and an inner surface, the inner surface receiving and supporting, on a lower run thereof, a suspension of the tracked vehicle, wherein the ground-engaging surface bears outward extending traction lugs, each one of the lugs having a multi-angle outward edge.

[0006] There is further provided a traction track for propelling a tracked vehicle propelling over one of snow, ice, and similar ground structures, having a ground-engaging surface comprising a profile made of outward extending traction lugs, each one of the lugs having a multi-angle outward edge.

[0007] Other objects, advantages and features of the present invention will become 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

[0008] In the appended drawings:

[0009] Figure 1 is a perspective view of a portion of a track in accordance with the present invention;

[0010] Figure 2 is a side view of the track of Figure 1; and

[0011] Figure 3 is a side view of a column of a lug of the track of Figure 1.

DESCRIPTION OF EMBODIMENTS OF THE INVENTION

[0012] Referring to Figures 1 and 2, there is shown, in part, an endless track, generally denoted 10, for propelling a snowmobile over snow, ice, or other similar ground structure. The mounting of this track to a given vehicle is well known and needs not be detailed.

[0013] The track has a ground-engaging outer surface 12 and an inner surface 14. The inner surface 14 typically receives and supports, on a lower run thereof, a suspension (not shown), which may consist of a wheel assembly or a slide rail assembly, both of which are also well known in the art.

[0014] The track 10 comprises a plurality of crossbar receiving areas 30 that extend through a central, a lateral and a suspension bearing portions of the track. Each crossbar receiving area 30 comprises an arrangement of profile regions 32 and profile-free regions 34. Such an arrangement of profiles and profile-free regions defines a tread pattern, which may be repeated on successive crossbar receiving areas.

[0015] The profile regions 32a-32d bear outward extending traction lugs, which are made of a series of columns 40 for example, in the embodiment illustrated herein.

[0016] As best seen in Figure 3, each lug or column 40 may have a multi-angle outward edge 44 instead of a flat surface. The orientation of each lug or column 40 may be randomly selected, not only longitudinally with respect to a base line 46 of the ground-engaging surface 12, but also transversally thereto.

[0017] People in the art will appreciate that such a configuration allows for a contact between the track and the ground to be engaged to occur gradually, as each angled mini surface of a given lug comes to grip therewith, thereby allowing an increased traction through an increased penetration in the ground, such as snow.

[0018] Moreover, it is found that this configuration results in a reduced production of noise, due the contact between the track and the ground occurring gradually.

[0019] Each column in a given lug 40 may have a different height.

[0020] Although the present invention has been described hereinabove by way of embodiments thereof, it can be modified, without departing from the nature and teachings of the subject invention as described herein.

CLAIMS

1. A track for traction of a snowmobile or ATV, the track being a rubber-based endless track and comprising:
   - an inner surface for facing a suspension assembly of the snowmobile or ATV; and
   - a ground-engaging outer surface for engaging a ground on which the snowmobile or ATV travels, the ground-engaging outer surface comprising a plurality of traction projections projecting outwardly in a thickness direction of the track and spaced apart in a longitudinal direction of the track, each traction projection of the plurality of traction projections comprising an outward edge portion for penetrating into the ground, the outward edge portion comprising a ground-contacting surface which faces and contacts the ground when the traction projection contacts the ground, the ground-contacting surface being inclined relative to the longitudinal direction of the track such that, when the traction projection is viewed along a widthwise direction of the track, the ground-contacting surface defines an angle with respect to the longitudinal direction of the track.

2. The track claimed in claim 1, wherein the ground-contacting surface is inclined relative to the widthwise direction of the track such that, when the traction projection is viewed along the longitudinal direction of the track, the ground-contacting surface defines an angle with respect to the widthwise direction of the track.

3. The track claimed in any one of claims 1 and 2, wherein the ground-contacting surface is a first ground-contacting surface, the outward edge portion comprising a second ground-contacting surface which faces and contacts the ground when the traction projection contacts the ground, the second ground-contacting surface being inclined relative to the longitudinal direction of the track such that, when the traction projection is viewed along

the widthwise direction of the track, the second ground-contacting surface defines an angle with respect to the longitudinal direction of the track.

4. The track claimed in claim 3, wherein the angle with respect to the longitudinal direction of the track defined by the second ground-contacting surface is different from the angle with respect to the longitudinal direction of the track defined by the first ground-contacting surface.

5. The track claimed in any one of claims 3 and 4, wherein the second ground-contacting surface is inclined relative to the widthwise direction of the track such that, when the traction projection is viewed along the longitudinal direction of the track, the second ground-contacting surface defines an angle with respect to the widthwise direction of the track.

6. The track claimed in claim 5, wherein the angle with respect to the widthwise direction of the track defined by the second ground-contacting surface is different from the angle with respect to the widthwise direction of the track defined by the first ground-contacting surface.

7. The track claimed in any one of claims 3 to 6, wherein the outward edge portion comprises a recess between the first ground-contacting surface and the second ground-contacting surface.

8. The track claimed in any one of claims 3 to 6, wherein the outward edge portion comprises a third ground-contacting surface which faces and contacts the ground when the traction projection contacts the ground, the third ground-contacting surface being inclined relative to the longitudinal direction of the track such that, when the traction projection is viewed along the widthwise direction of the track, the third ground-contacting surface defines an angle with respect to the longitudinal direction of the track.

9. The track claimed in claim 8, wherein the angle with respect to the longitudinal direction of the track defined by the third ground-contacting surface is different from the angle with respect to the longitudinal direction of the track defined by the first ground-contacting surface and different from the angle with respect to the longitudinal direction of the track defined by the second ground-contacting surface.

10. The track claimed in any one of claims 8 and 9, wherein the third ground-contacting surface is inclined relative to the widthwise direction of the track such that, when the traction projection is viewed along the longitudinal direction of the track, the third ground-contacting surface defines an angle with respect to the widthwise direction of the track.

11. The track claimed in claim 10, wherein the angle with respect to the widthwise direction of the track defined by the third ground-contacting surface is different from the angle with respect to the widthwise direction of the track defined by the first ground-contacting surface and different from the angle with respect to the widthwise direction of the track defined by the second ground-contacting surface.

12. The track claimed in any one of claims 8 to 11, wherein the outward edge portion comprises recesses between adjacent ones of the first ground-contacting surface, the second ground-contacting surface, and the third ground-contacting surface.

13. The track claimed in any one of claims 1 to 12, wherein the traction projection comprises a plurality of traction columns, the ground-contacting surface being part of a given one of the traction columns.

14. The track claimed in any one of claims 1 to 13, comprising a plurality of crossbars embedded between the inner surface and the ground-engaging

outer surface and extending transversally to the longitudinal direction of the track.

15. The track claimed in any one of claims 1 to 14, wherein the suspension assembly comprises a wheel and the inner surface is configured to engage the wheel.

16. The track claimed in any one of claims 1 to 14, wherein the suspension assembly comprises a slide rail and the inner surface is configured to engage the slide rail.

17. A snowmobile or ATV comprising the track claimed in any one of claims 1 to 16.

18. A track for traction of a snowmobile or ATV, the track being a rubber-based endless track and comprising:

- an inner surface for facing a suspension assembly of the snowmobile or ATV; and
- a ground-engaging outer surface for engaging a ground on which the snowmobile or ATV travels, the ground-engaging outer surface comprising a plurality of traction projections projecting outwardly in a thickness direction of the track and spaced apart in a longitudinal direction of the track, each traction projection of the plurality of traction projections comprising an outward edge portion for penetrating into the ground, the outward edge portion comprising a plurality of ground-contacting surfaces which face and contact the ground when the traction projection contacts the ground, each ground-contacting surface of the plurality of ground-contacting surface being: (i) inclined relative to the longitudinal direction of the track such that, when the traction projection is viewed along a widthwise direction of the track, the ground-contacting surface defines an angle with respect to the longitudinal direction of the track; and (ii) inclined

relative to the widthwise direction of the track such that, when the traction projection is viewed along the longitudinal direction of the track, the ground-contacting surface defines an angle with respect to the widthwise direction of the track.

19. The track claimed in claim 18, wherein the angle with respect to the longitudinal direction of the track defined by a first one of the ground-contacting surfaces is different from the angle with respect to the longitudinal direction of the track defined by a second one of the ground-contacting surfaces.

20. The track claimed in claim 19, wherein the angle with respect to the widthwise direction of the track defined by the first one of the ground-contacting surfaces is different from the angle with respect to the widthwise direction of the track defined by the second one of the ground-contacting surfaces.

21. The track claimed in claim 18, wherein the angle with respect to the widthwise direction of the track defined by a first one of the ground-contacting surfaces is different from the angle with respect to the widthwise direction of the track defined by a second one of the ground-contacting surfaces.

22. The track claimed in any one of claims 18 to 21, wherein the angle with respect to the longitudinal direction of the track defined by a third one of the ground-contacting surfaces is different from the angle with respect to the longitudinal direction of the track defined by the first one of the ground-contacting surfaces and different from the angle with respect to the longitudinal direction of the track defined by the second one of the ground-contacting surfaces.

23. The track claimed in claim 22, wherein the angle with respect to the widthwise direction of the track defined by the third one of the ground-contacting

surfaces is different from the angle with respect to the widthwise direction of the track defined by the first one of the ground-contacting surfaces and different from the angle with respect to the widthwise direction of the track defined by the second one of the ground-contacting surfaces.

24. The track claimed in any one of claims 18 to 21, wherein the angle with respect to the widthwise direction of the track defined by a third one of the ground-contacting surfaces is different from the angle with respect to the widthwise direction of the track defined by the first one of the ground-contacting surfaces and different from the angle with respect to the widthwise direction of the track defined by the second one of the ground-contacting surfaces.

25. The track claimed in any one of claims 18 to 24, wherein the plurality of ground-contacting surfaces comprises at least three ground-contacting surfaces.

26. The track claimed in any one of claims 18 to 24, wherein the plurality of ground-contacting surfaces comprises at least four ground-contacting surfaces.

27. The track claimed in any one of claims 18 to 26, wherein the outward edge portion comprises recesses between adjacent ones of the ground-contacting surfaces.

28. The track claimed in any one of claims 18 to 27, wherein the traction projection comprises a plurality of traction columns, the ground-contacting surfaces being part of respective ones of the traction columns.

29. The track claimed in any one of claims 18 to 28, comprising a plurality of crossbars embedded between the inner surface and the ground-engaging

outer surface and extending transversally to the longitudinal direction of the track.

30. The track claimed in any one of claims 18 to 29, wherein the suspension assembly comprises a wheel and the inner surface is configured to engage the wheel.

31. The track claimed in any one of claims 18 to 29, wherein the suspension assembly comprises a slide rail and the inner surface is configured to engage the slide rail.

32. A snowmobile or ATV comprising the track claimed in any one of claims 18 to 31.

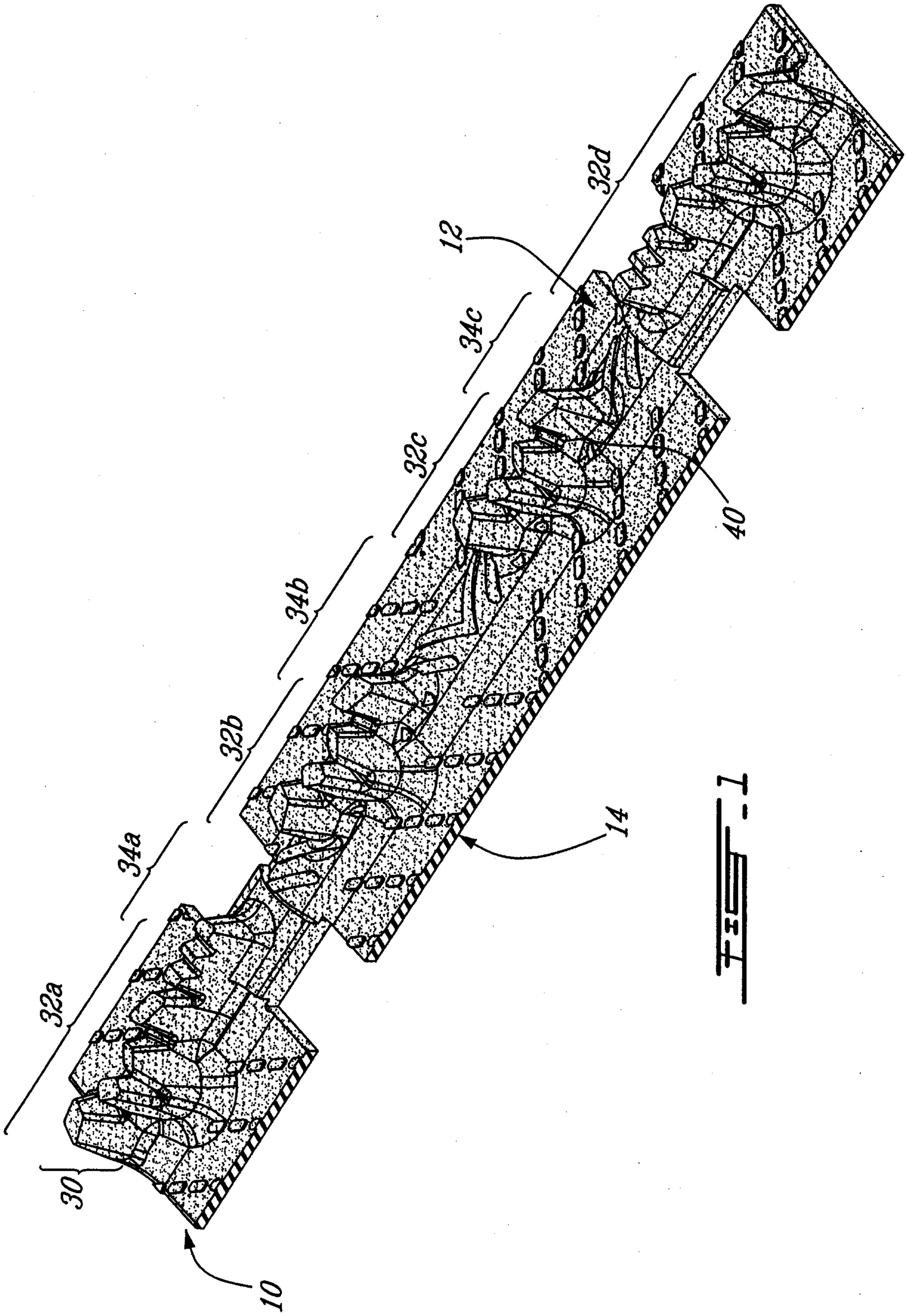


FIG-1

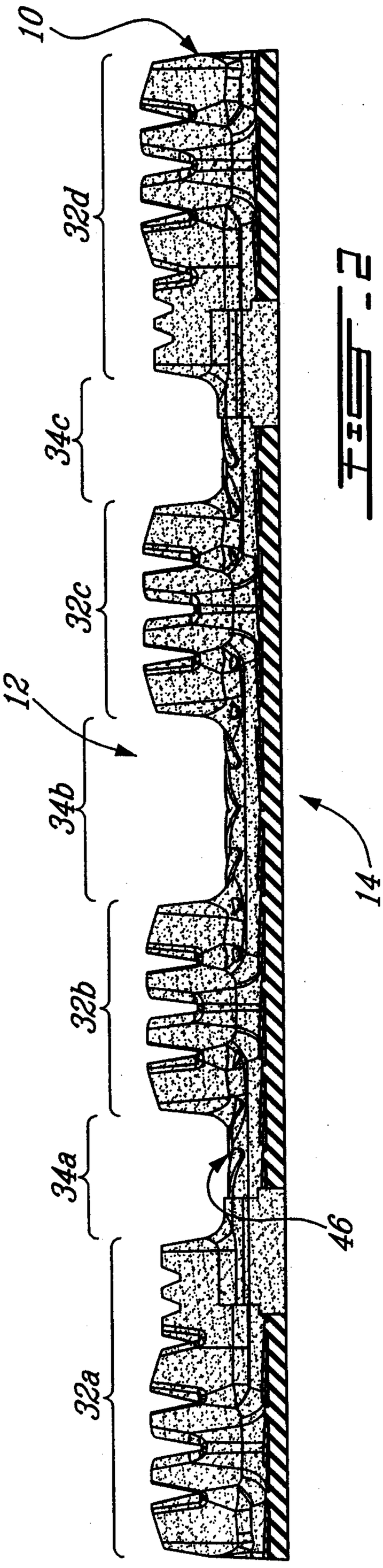


FIG. 2

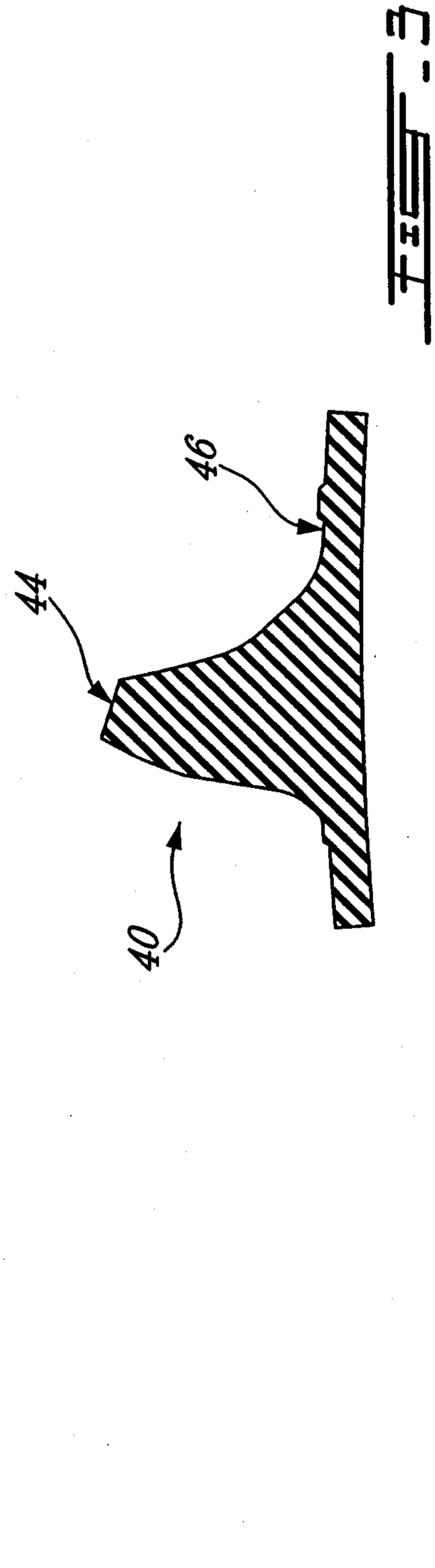
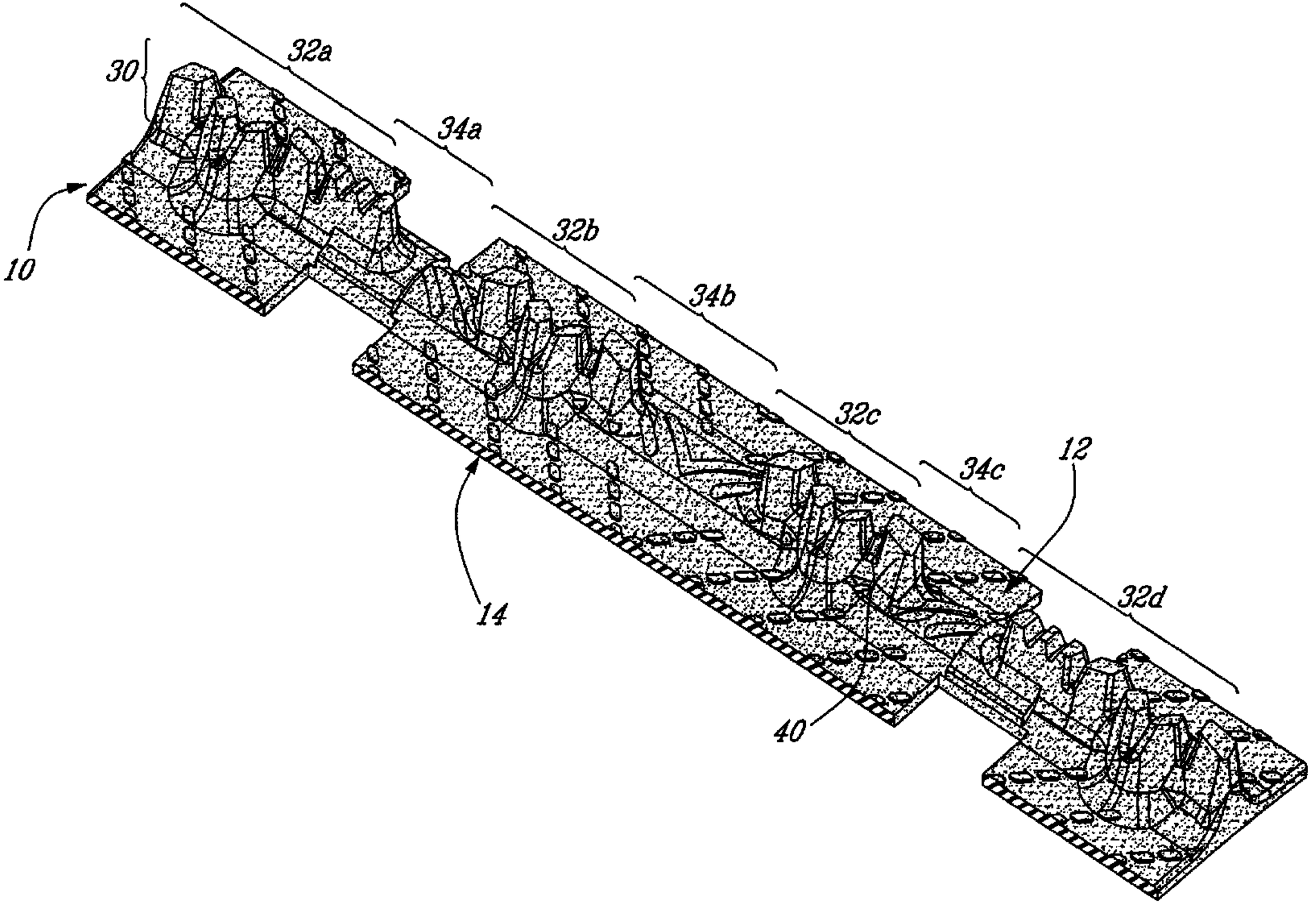


FIG. 3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32a
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32b
34b
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34c
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14
40