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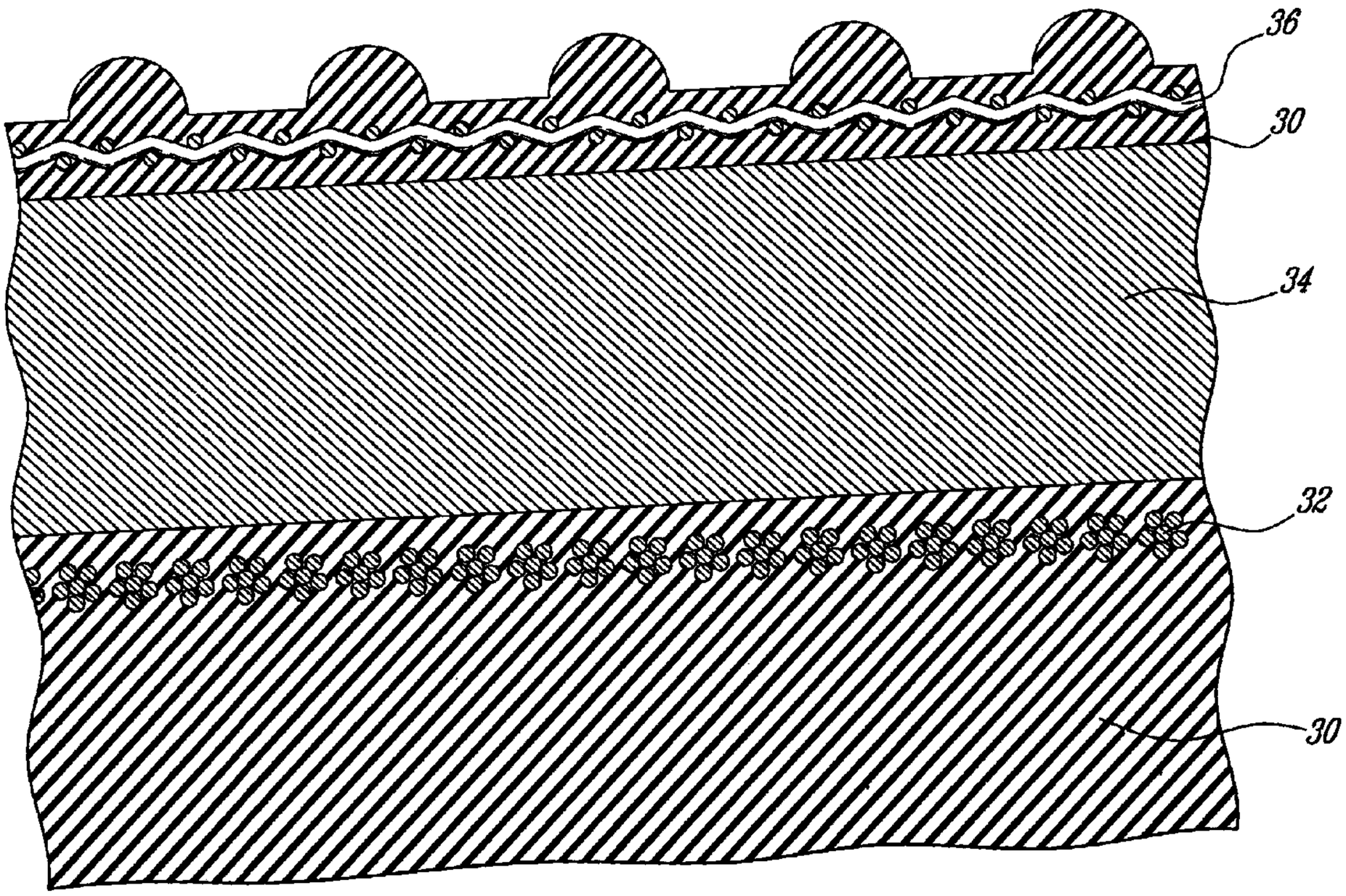
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(54) Titre : CHENILLE D'ENTRAINEMENT POUR MOTONEIGE OU VEHICULE CHENILLE
(54) Title: DRIVE TRACK FOR SNOWMOBILE OR TRACKED VEHICLE



(57) Abrégé/Abstract:
A track formed of a molded rubber base sandwiching a cord layer, followed by a cross bar and a single layer of ply fabric extending longitudinally of the track.

ABSTRACT OF THE DISCLOSURE

A track formed of a molded rubber base sandwiching a cord layer, followed by a cross bar and a single layer of ply fabric extending longitudinally of the track.

TITLE OF THE INVENTION

[0001] Drive track for snowmobile or tracked vehicle

FIELD OF THE INVENTION

[0002] The present invention pertains to a drive track and, more particularly, to a track for snowmobiles or other tracked vehicles, having an improved construction to decrease horse power, increase top speed and improve durability of the track when the latter is driven at high rotational speeds.

BACKGROUND OF THE INVENTION

[0003] Endless drive tracks for propelling, for example, a snowmobile over snow, ice or other similar ground structure, are known in the art. The mounting of this track to a snowmobile and the mounting of such track on an all-terrain vehicle are well known. The track has a ground engaging outer side and an inner side that receives and supports, on the lower run thereof, a suspension which may consist of a wheel assembly or a slide rail assembly, both of which are also well known in the art.

[0004] Conventionally, the track rotates by means of a motor driven sprocket unit at the forward end of the vehicle and idle drive wheels are mounted at the aft end of the vehicle to support the rear end of the track. Sprockets engage a series of lugs integrally formed with the inner surface of the track.

[0005] With reference to Figure 1, the endless body is generally formed of a molded rubber base having, embedded therein, a first layer of

reinforcing fabric 38 extending longitudinally of the track, a series of laterally spaced cord strands 40 which extend between the first layer of fabric and beneath a rod 32, and a second ply 36 fabric disposed above the rod 32. Such arrangement has been shown to allow good track performance and longevity. It is generally believed that an increased amount of fabric contributes these performances. In areas of the track where there is no rod 32, it is about at mid-thickness of the track where the fiber of the rubber is the strongest, this line of zero stress in cross section of the track separating the region of compressive stress from that of tensile stress being known as the neutral fiber.

[0006] In spite of efforts in this field, there is still a need for a lighter, cost effective track.

SUMMARY OF THE INVENTION

[0007] More specifically, there is provided a track for a tracked vehicle, comprising a molded rubber base sandwiching a cord layer, followed by a cross bar and a single layer of ply fabric extending longitudinally of the track.

[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] Figure 1 is a cross section of a track as known in the art;

[0011] Figure 2 is a perspective view of a portion of a track according to an embodiment of the present invention;

[0012] Figure 3 is a cross-sectional view of the of Figure 2;

[0013] Figure 4 is a graph of power as a function of speed, used by a track according to the present invention, in a test without traction; and

[0014] Figure 5 is a graph of power as a function of speed, used by a track according to the present invention, in a test including traction.

DESCRIPTION OF EMBODIMENTS OF THE INVENTION

[0015] As shown in Figure 2, a track 10 according to an embodiment of the present invention comprises a ground engaging outer side 12 and an inner side (not seen in Figure 2).

[0016] As seen in the cross-section of Figure 3, the track 10 is formed of a molded rubber base 30 sandwiching a cord layer 32, followed by a cross bar 34 and a single layer of ply fabric 36 extending longitudinally of the track.

[0017] The cross bar 34 may consists of a rod as known in the art, made of composite material for example. It is located at spaced intervals along the longitudinal direction of the track beneath the profiles 14 projecting from the outer side 12 of the track.

[0018] The cord layer 32 comprises a dense strand arrangement formed of a twist arrangement of strands, comprising for example at least 18 strands per inch for a cord of 1.25 mm. The strands include high strength, light weight materials such as man made fibers, such as Kevlar™, nylon, and polyester fabric for example

[0019] The cord layer 32 extends on the rubber base 30 and passes beneath the rod 34.

[0020] The cord layer 32 may be discontinued at locations of the track where the idler wheels pass.

[0021] The ply of fabric 36 includes woven man-made fibers such as nylon for example.

[0022] As shown in Figures 4 and 5, the present track is found to necessitate equal or less power, which goes against the current belief in the industry that the greater the amount of fabric in the track composition, the better the performances.

[0023] People in the art will appreciate that the present invention provides, in contrast to a track standardly made in the art and including an arrangement of rubber, a first ply fabric, cord, rod, second ply fabric and rubber, a track comprising a single layer of ply fabric, yielding a track of reduced thickness, weight and cost, while maintaining target performances thereof in terms of power and longevity. In particular, the present composition is shown to decrease horse power, increase top speed and improve durability of the track when the latter is driven at high rotational speeds. It has also been found to

optimize the so-called neutral fiber bringing it closer to the outer side of the track.

[0024] The present track may be used for a range of tracked vehicles.

[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. A track for a tracked vehicule, comprising a molded rubber base sandwiching a cord layer, followed by a cross bar and a single layer of ply fabric extending longitudinally of the track.

2. The track of claim 1, wherein said cross bar is of a rod.

3. The track of claim 2, wherein said rod is made of composite material.

4. The track of claim 1, wherein said cross bar is located at spaced intervals along a longitudinal direction of the track beneath profiles projecting from a ground engaging side of the track.

5. The track of claim 1, wherein said cord layer comprises a dense strand arrangement formed of a twist arrangement of strands.

6. The track of claim 5, wherein said dense strand arrangement comprises at least 18 strands per inch for a cord of 1.25 mm.

7. The track of claim 5, wherein said dense strand arrangement comprises high strength, light weight materials.

8. The track of claim 5, wherein said materials are selected in the group consisting of Kevlar™, nylon, and polyester.

9. The track of claim 1, wherein said cord layer extends on the rubber base and passes beneath the cross bar.

10. The track of claim 1, wherein said cord layer 32 is discontinued at locations of the track where idler wheels of the vehicule pass.

11. The track of claim 1, wherein said ply of fabric includes woven man-made fibers.

12. The track of claim 11, wherein said man-made fibers comprise nylon.

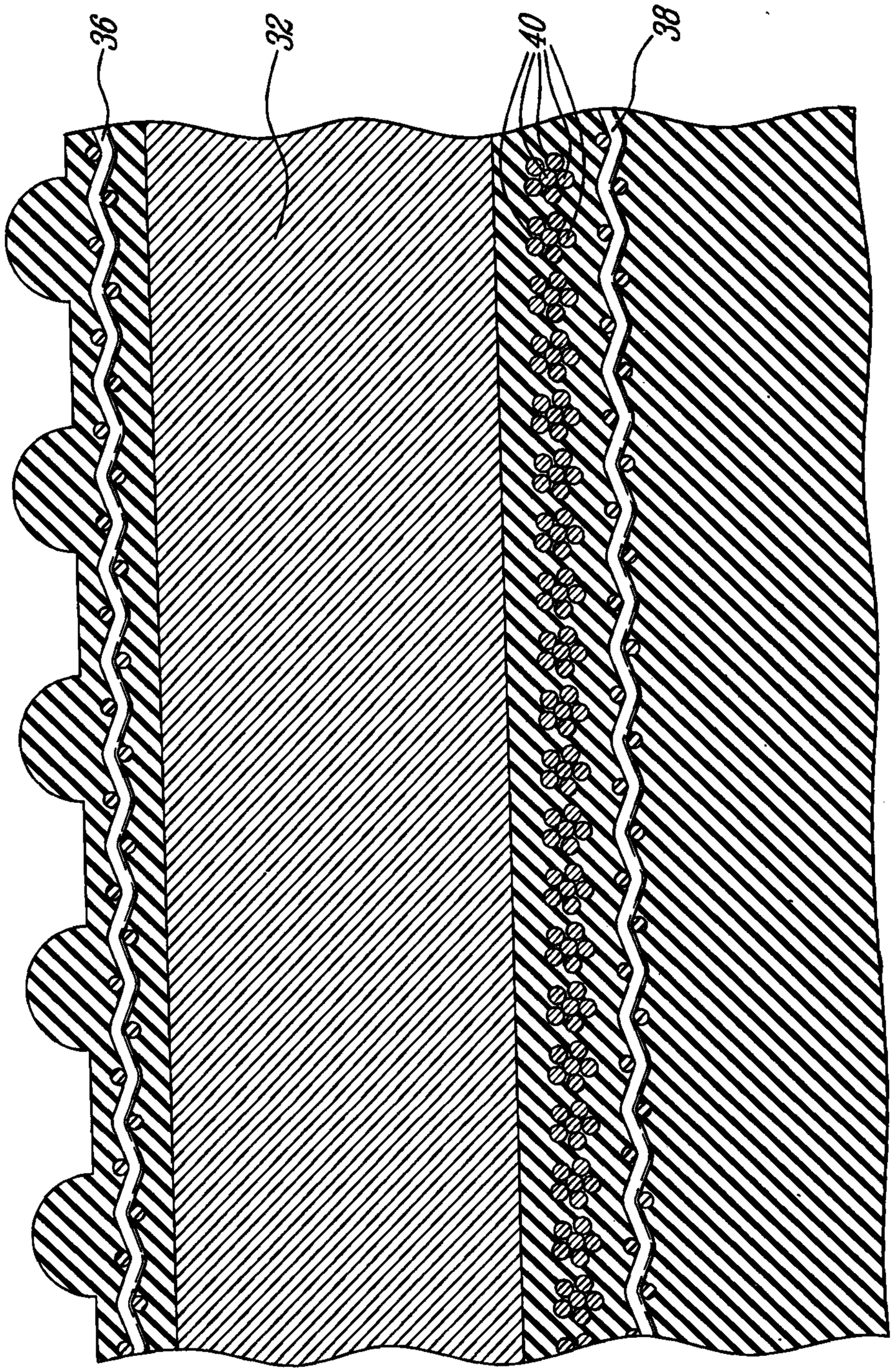


FIG - 1 PRIOR ART

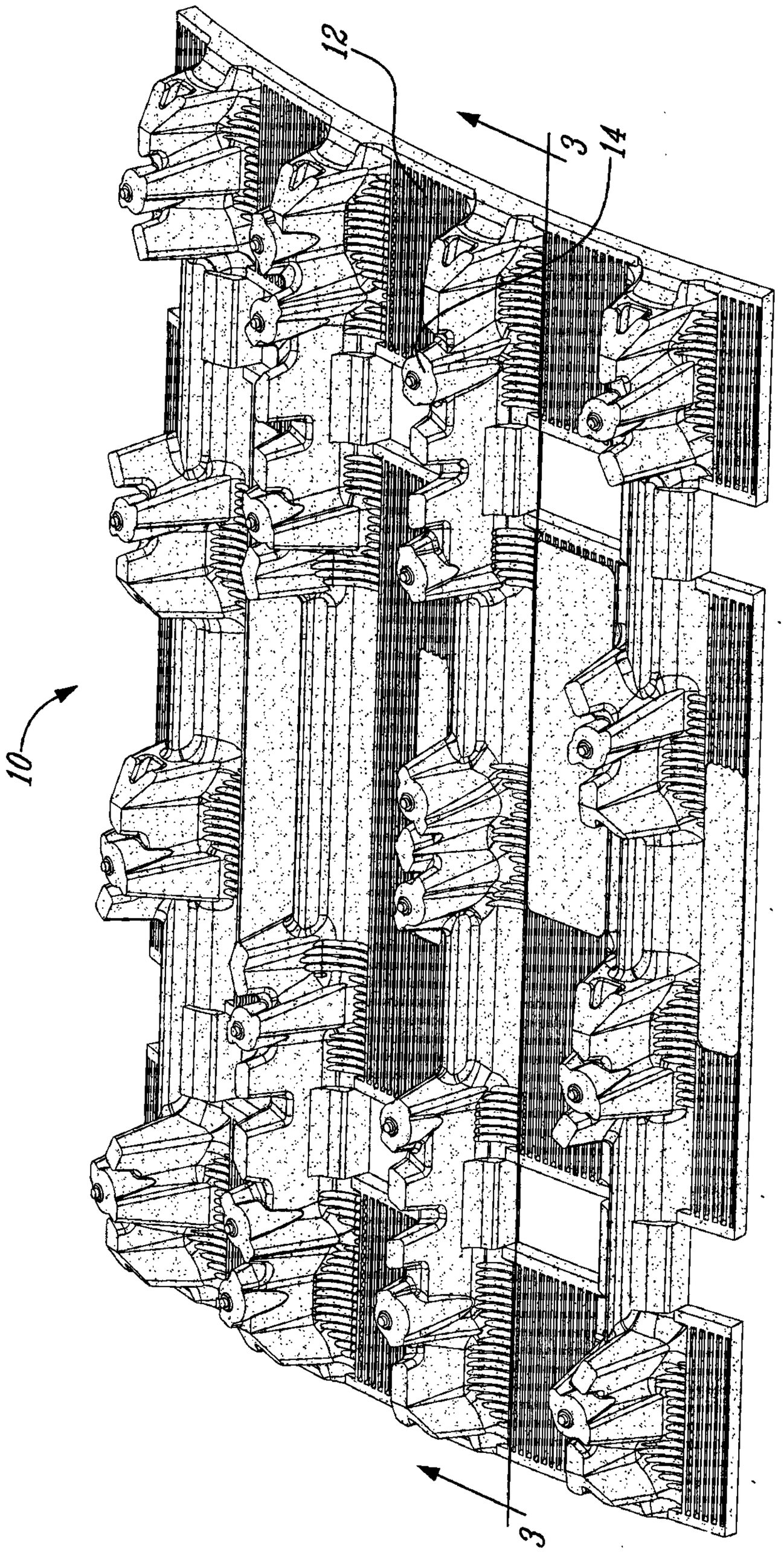


FIG-2

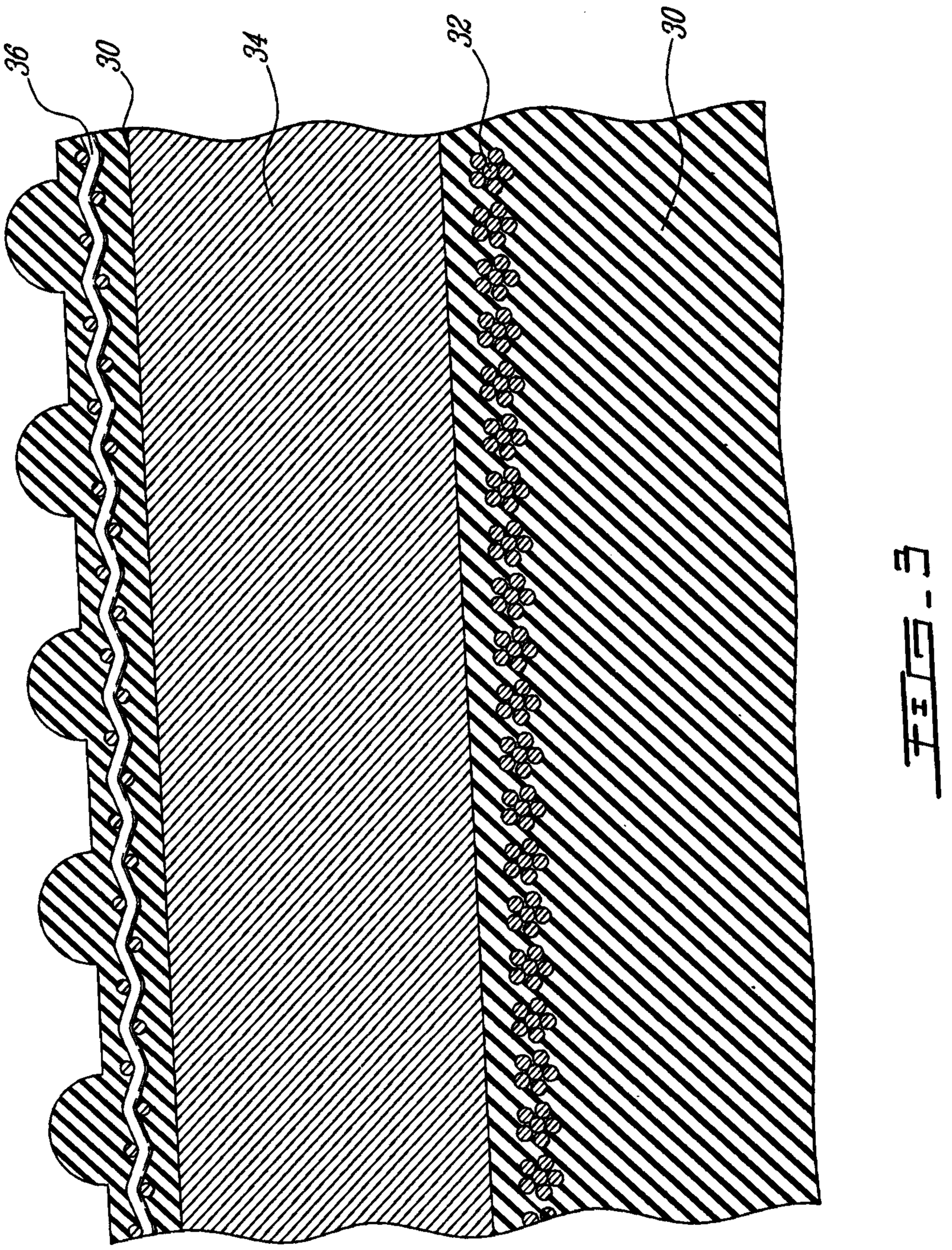


FIG. 3

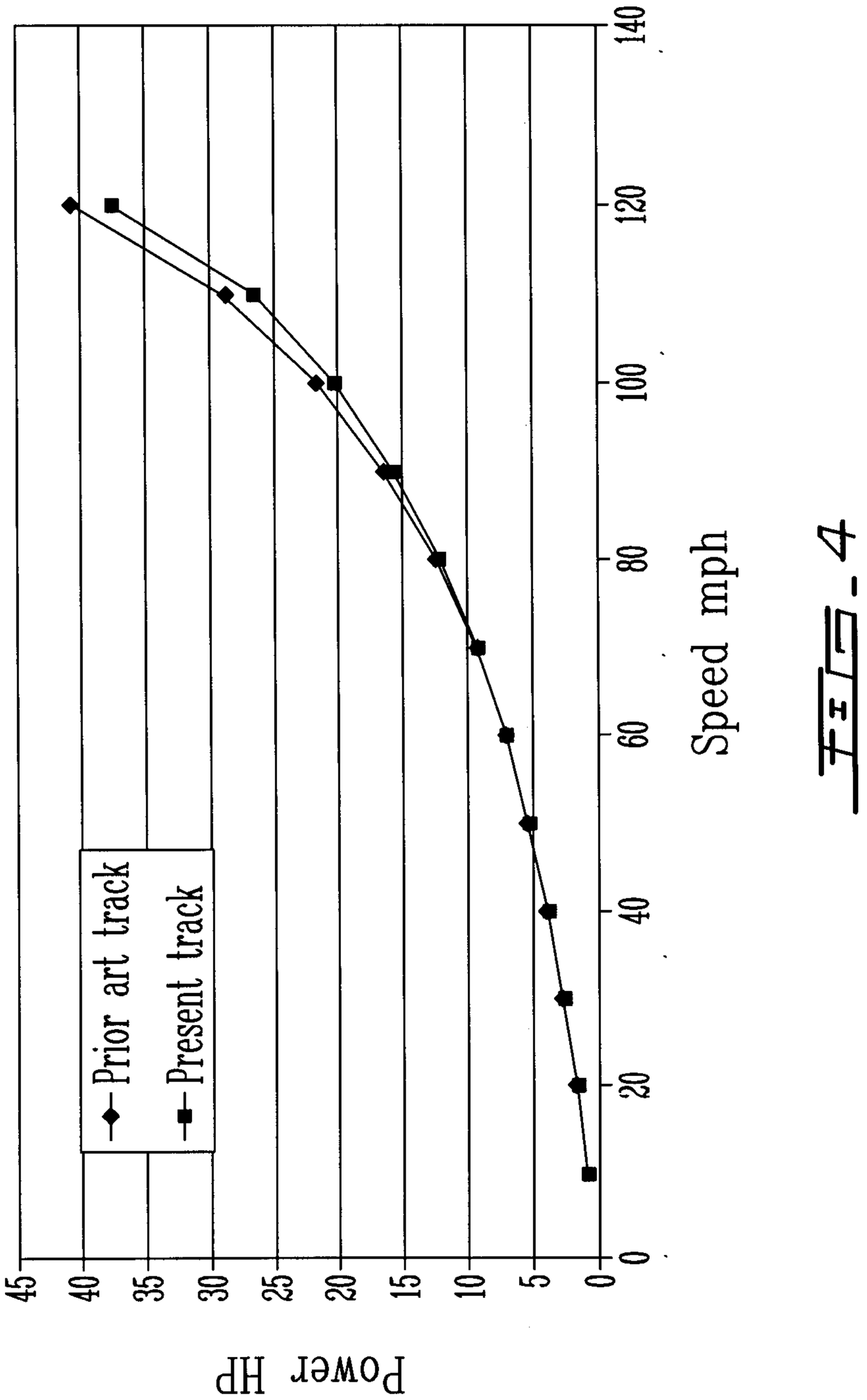

Prior art track
Present track
Power HP
Speed mph
0
20
40
60
80
100
120
140
0
5
10
15
20
25
30
35
40
45

Fig. 4

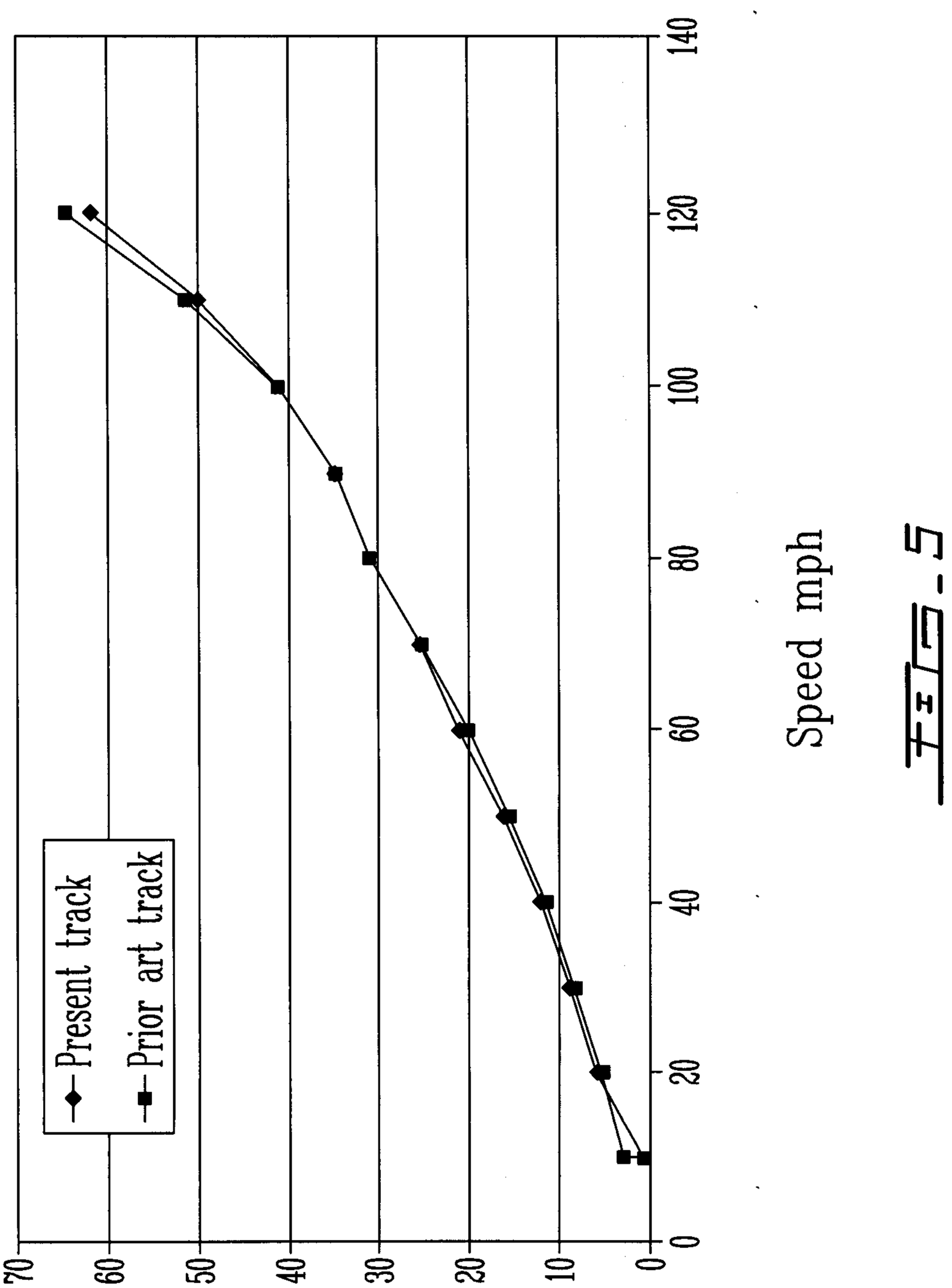
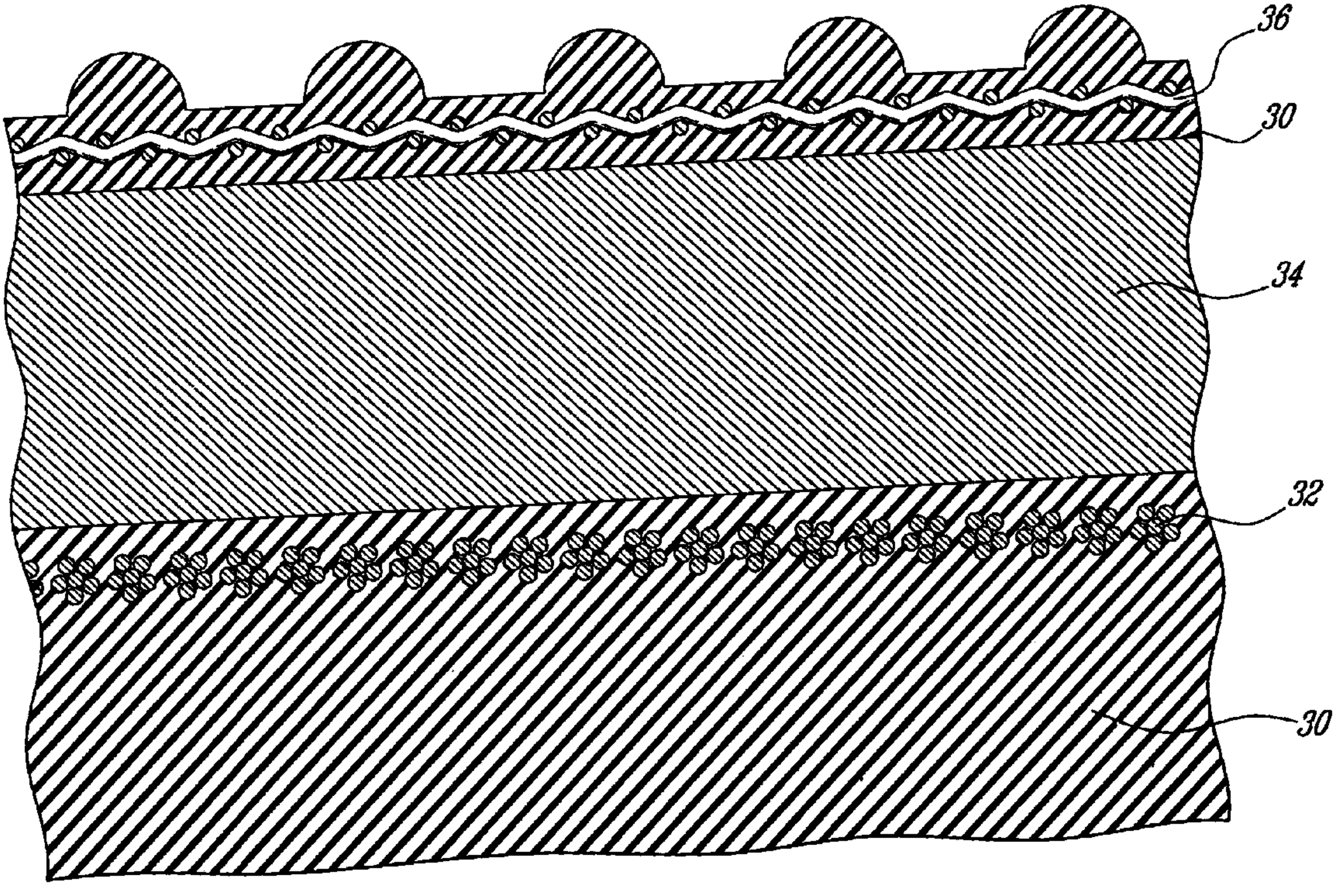

Present track
Prior art track
Power HP
Speed mph
0
10
20
30
40
50
60
70
0
20
40
60
80
100
120
140

FIG. 5


36
30
34
32
30