

PATENT SPECIFICATION

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(72) Inventors: RAYMOND ALBERT BIANCHI
HARRY ENNO CAMPEN

(19)



(54) IDLER WEAR STRIP RETAINER FOR TRACK-TYPE VEHICLES

(71) We, CATERPILLAR TRACTOR CO., a corporation organised and existing under the laws of the State of California, United States of America, of 100 N.E. Adams Street, Peoria, Illinois 61629, United States of America, do hereby declare the invention, for which we pray that a patent may be granted to us and the method by which it is to be performed, to be particularly described in and by the following statement:-

Track-laying vehicles generally include an idler wheel for supporting a moving track. Support flanges extend from opposite sides of the idler. A recoil mechanism, usually including a large compressible coil spring, is mounted on the vehicle and is also connected to the idler wheel. When the track is flexed substantially, the idler wheel moves to compress the coil and absorbs the track flexure.

A roller frame is also connected to the vehicle and extends on opposite sides of the idler for supporting the track. Wear strip supports are connected to the frame and metallic wear strips are usually welded to those supports. During track flexure, the support flanges on the idler engage the wear strips on the frame in metal to metal sliding and supporting engagement.

Due to repeated metal to metal wear, the strips require occasional removal and replacement. Such removal is difficult and time consuming since the wear strips are welded in place on the frame.

In accordance with the invention on track-laying vehicle has a track assembly including a track supporting idler which has a support slidable along a wear strip when the idler makes recoil movements upon flexure of the track, the wear strip being retained at each of its ends in a receptacle formed between a frame portion of the vehicle and a respective one of a pair of retainer means secured to the frame por-

tion, and at least one of the retainer means being releasably secured to the frame portion to allow ready removal and replacement of the wear-strip.

An example of a track-laying vehicle constructed in accordance with the invention is illustrated in the accompanying drawings, in which:-

Figure 1 is a side view generally illustrating a track-laying tractor undercarriage;

Figure 2 is a cross-sectional view illustrating a roller frame-idler wheel portion of a track undercarriage taken on the line II-II in Figure 1;

Figure 3 is a partial side view illustrating supportive engagement between a roller frame and an idler wheel;

Figure 4 is a side view illustrating one end of the wear strip and retainer.

Figure 5 is an end view illustrating the wear strip and retainer taken on line IV-IV in Figure 4;

Figure 6 is a side view illustrating the other end of the wear strip and retainer;

Figure 7 is an end view illustrating the wear strip and retainer taken on line VI-VI in Figure 6 and,

Figure 8 is an isometric view illustrating the wear strip and retainer.

Referring now to the drawings, the tractor has an undercarriage 10 comprising a track 12 driven by sprocket 14 and supported by carrier rollers 16, track guides 18 and idler wheel 20. A roller frame 22 is connected to the main frame of the tractor and aids in supporting the sprocket and idler wheels. A resilient recoil mechanism, shown in phantom outline at 24, includes a large compressible coil spring 26 and is mounted on the tractor frame and connected to idler 20 to permit idler 20 to move relative to its supporting roller frame 22 when track 12 is substantially flexed as is well known. When such flexure of the track occurs, idler wheel 20 supported by frame 22 moves relative to

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the frame toward sprocket 14 thus compressing coil 26 which absorbs the track flexure.

In Figure 2, opposed roller frame members 22 are spaced to support idler wheel 20. Wear strip supports 28 are connected, usually by welding, to the frame members 22. Metallic wear strips 30 are also connected, usually welded, to the wear strip supports 28. A metallic idler collar 32, mounted on opposite sides of idler wheel 20 engages wear strips 30 in metal to metal sliding and supporting engagement where support flange 34 of collar 32 engages wear strip 30, see also Figure 3.

Further in Figure 3, roller frame 22 including wear strip support 28 has a plurality of retainer members 36, 38 secured thereto for releasably retaining wear strip 30 in position relative to idler 20. At least one of the retainer members, such as that shown at 38, is releasably connected to the frame 22 via support 28 due to attachment with a bolt 40.

First retainer 36, Figures 4 and 5, includes a wear strip stop 42 preferably steel and welded to and part of frame 22. Stop 42 abuts the first end 44 of wear strip support 28. Retainer 36 also includes a wear strip bottom retainer 46 preferably steel and welded to stop 42 and extends therefrom a preselected distance substantially parallel with support 28. Also wear strip retainer 36 includes side retainer 48 preferably of steel and welded to support 28 and to bottom retainer 46. Thus, first retainer 36 forms a receptacle at slot 50 with frame 22 for slidably receiving first end 52 of wear strip 30 whereby first end 52 of wear strip 30 is releasably engaged and retained by first retainer 36. A chamfer 54 is preferably formed on bottom retainer 46 to provide easy inserting of first end 52 of strip 30 into slot 50.

Second retainer 38, Figures 6 and 7, includes a wear strip retainer portion 56 generally "L" shaped and preferably formed of steel having a wear strip stop portion 58 formed with a wear strip bottom retainer portion 60. Thus, stop portion 58 can abut second end 62 of wear strip support 28 and bottom portion 60 extends therefrom a preselected distance substantially parallel with support 28 to retain wear strip 30. Bolt 40 passes through washer 64, bore 66 in stop portion 58 and into threaded bore 68 formed in second end 62 of support 28. Also, retainer 38 includes side retainer 70 preferably of steel, also "L" shaped and welded to top surface 72 and to side surface 76 of strip retainer 56. Thus, second retainer 38 comprises a retainer cap formed of two "L" shaped portions 56, 70, welded together as a unit which may be bolted to the wear strip support portion 28 of frame 22. Retainer or cap 38 forms a receptacle at slot 74 with

frame 22 for releasably engaging and retaining second end 78 of wear strip 30 due to releasable bolt 40 in threaded bore 68.

In operation, with first retainer 36 welded to frame 22, and second retainer 38 removed, first end 52 of wear strip 30 is inserted into slot 50 in abutment with stop 42. Retainer 38 is then mounted at second end 62 of support 28 so that second end 78 of wear strip 30 is in slot 74 and stop portion 58 abuts second end 62 of support 28. Bolt 40 is then threaded into bore 68 and wear strip 30 is releasably retained in position relative to idler 20. When required, bolt 40 and second retainer 38 can be removed for replacement of wear strip 30.

WHAT WE CLAIM IS:-

1. A track-laying vehicle having a track assembly including a track supporting idler which has a support slidable along a wear strip when the idler makes recoil movements upon flexure of the track, the wear strip being retained at each of its ends in a receptacle formed between a frame portion of the vehicle and a respective one of a pair of retainer means secured to the frame portion, and at least one of the retainer means being releasably secured to the frame portion to allow ready removal and replacement of the wear strip.

2. A vehicle according to claim 1, wherein one of the retaining means is welded to the frame adjacent to a first end of wear strip, and the other retaining means is bolted to the frame adjacent to the other end of the wear strip.

3. A vehicle according to claim 1, substantially as described with reference to the accompanying drawings.

For the Applicants:
GILL JENNINGS & EVERY,
Chartered Patent Agents,
53/64 Chancery Lane,
London, WC2A 1HN.

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the frame toward sprocket 14 thus compressing coil 26 which absorbs the track flexure.

5 In Figure 2, opposed roller frame members 22 are spaced to support idler wheel 20. Wear strip supports 28 are connected, usually by welding, to the frame members 22. Metallic wear strips 30 are also connected, usually welded, to the wear strip supports 10 28. A metallic idler collar 32, mounted on opposite sides of idler wheel 20 engages wear strips 30 in metal to metal sliding and supporting engagement where support flange 34 of collar 32 engages wear strip 30, 15 see also Figure 3.

Further in Figure 3, roller frame 22 including wear strip support 28 has a plurality of 20 retainer members 36, 38 secured thereto for releasably retaining wear strip 30 in position relative to idler 20. At least one of the retainer members, such as that shown at 38, is releasably connected to the frame 22 via support 28 due to attachment with a bolt 40.

25 First retainer 36, Figures 4 and 5, includes a wear strip stop 42 preferably steel and welded to and part of frame 22. Stop 42 abuts the first end 44 of wear strip support 28. Retainer 36 also includes a wear strip bottom retainer 46 preferably steel and 30 welded to stop 42 and extends therefrom a preselected distance substantially parallel with support 28. Also wear strip retainer 36 includes side retainer 48 preferably of steel and welded to support 28 and to bottom retainer 46. Thus, first retainer 36 forms a 35 receptacle at slot 50 with frame 22 for slidably receiving first end 52 of wear strip 30 whereby first end 52 of wear strip 30 is releasably engaged and retained by first 40 retainer 36. A chamfer 54 is preferably formed on bottom retainer 46 to provide easy inserting of first end 52 of strip 30 into slot 50.

45 Second retainer 38, Figures 6 and 7, includes a wear strip retainer portion 56 generally "L" shaped and preferably formed of steel having a wear strip stop portion 58 formed with a wear strip bottom retainer portion 60. Thus, stop portion 58 can abut 50 second end 62 of wear strip support 28 and bottom portion 60 extends therefrom a preselected distance substantially parallel with support 28 to retain wear strip 30. Bolt 40 passes through washer 64, bore 66 in stop 55 portion 58 and into threaded bore 68 formed in second end 62 of support 28. Also, retainer 38 includes side retainer 70 preferably of steel, also "L" shaped and welded to top surface 72 and to side surface 76 of strip 60 retainer 56. Thus, second retainer 38 comprises a retainer cap formed of two "L" shaped portios 56, 70, welded together as a unit which may be bolted to the wear strip support portion 28 of frame 22. Retainer or 65 cap 38 forms a receptacle at slot 74 with

frame 22 for releasably engaging and retaining second end 78 of wear strip 30 due to releasable bolt 40 in threaded bore 68.

In operation, with first retainer 36 welded to frame 22, and second retainer 38 removed, first end 52 of wear strip 30 is 70 inserted into slot 50 in abutment with stop 42. Retainer 38 is then mounted at second end 62 of support 28 so that second end 78 of wear strip 30 is in slot 74 and stop portion 75 58 abuts second end 62 of support 28. Bolt 40 is then threaded into bore 68 and wear strip 30 is releasably retained in position relative to idler 20. When required, bolt 40 and second retainer 38 can be removed for 80 replacement of wear strip 30.

WHAT WE CLAIM IS:-

1. A track-laying vehicle having a track assembly including a track supporting idler which has a support slidable along a wear 85 strip when the idler makes recoil movements upon flexure of the track, the wear strip being retained at each of its ends in a receptacle formed between a frame portion of the vehicle and a respective one of a pair 90 of retainer means secured to the frame portion, and at least one of the retainer means being releasably secured to the frame portion to allow ready removal and replacement of the wear strip. 95

2. A vehicle according to claim 1, wherein one of the retaining means is welded to the frame adjacent to a first end of wear strip, and the other retaining means 100 is bolted to the frame adjacent to the other end of the wear strip.

3. A vehicle according to claim 1, substantially as described with reference to the 105 accompanying drawings.

For the Applicants:
GILL JENNINGS & EVERY,
Chartered Patent Agents,
53/64 Chancery Lane,
London, WC2A 1HN. 110

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