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REGISTRARÍA Y CORTE
Radicalización: 03.047.664 6000000
Fecha de radicación: 17/03/2012
Trámite: 1. DE TRÁMITE 1. REVISIÓN DE LA UNIFORMIDAD
Representación: CERO DÍGITOS DE NUEVO DÍGITO

FORMULARIO UNICO DE OPOSICIÓN
2000-12

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OPOSICIÓN A:

- | | |
|---|---|
| ☒ Patente de Invención | ☐ Marca Colectiva |
| ☐ Patente de Modelo de Utilidad | ☐ Marca de Certificación |
| ☐ Diseño Industrial | ☐ Lema Comercial |
| ☐ Esquema de trazado para Circuitos Integrados | |
| ☐ Marcas de Productos o Servicios | |

②

SOLICITUD
PUBLICADA

Número del Expediente: 03.047.664
Solicitante: IAT LTDA.
Apoderado: EMILIO FERRERO
Título de la nueva creación o denominación del signo: ALOJAMIENTO PARA HOMBRO DE PLACAS
FUNDIDAS Y HOMBRERAS QUE PERMITE EL MONTAJE DE GRAMPAS ELÁSTICAS DE FIJACIÓN DE
CARRILES FERROVIARIOS.
Gaceta: 547

③

OPOSICION PRESENTADA POR:

OPOSITOR

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Domicilio: BOGOTÁ, COLOMBIA

IDENTIFICACION

C.C. ☐ NIT ☒
C.E. ☐ Otro ☐
Número 830.071.121-4

REPRESENTANTE
O APODERADO
(74)

Nombre: ALVARO CORREA ORDOÑEZ
Dirección: AV. 82 No. 10-62 PISO 6
Teléfono: 6341500 Fax: 3762211
E-Mail:

IDENTIFICACION

C.C. ☒ NIT ☐
C.E. ☐ Otro ☐
Número 79.143.366 TP 20.281

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FUNDAMENTOS DE LA OPOSICION: ADJUNTO MEMORIAL

Causal: FALTA DE NOVEDAD Y NIVEL INVENTIVO.

Justificación: PRUEBAS ADJUNTAS.

⑤ Comprobante de pago No. 05-11.921

Fecha: FEBRERO 16 DE 2005

⑥ Anexos:

- ☒ Comprobante de pago de la tasa
- ☐ Poderes, si fuere el caso
- ☐ Protocolo
- ☐ Sustitución de Poder
- ☒ Prueba de los fundamentos de la oposición
- ☐ Documentos que acrediten el legítimo interés, si fuere el caso
- ☐ Certificado de existencia y representación legal de las partes, cuando el solicitante sean personas jurídicas

⑦

NOMBRE: ALVARO CORREA ORDÓÑEZ

FIRMA:

C.C. 79.143.366 T.P. 20.281

91

SEÑORES

SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO

DIVISION DE NUEVAS CREACIONES

E. _____ S. _____ D. _____

Re: Expediente No. 03.047.664

Oposición a la Solicitud de Patente de Invención "Alojamiento para hombro de placas fundidas y hombreras que permite el montaje de grampas elásticas de fijación de carriles ferroviarios"

Solicitante: IAT LTDA.

Opositor: C.I. PRECONCRETOS RAHS LTDA.

**OPOSICIÓN SEGÚN ARTICULO 42 DE LA DECISIÓN 486 A LA
SOLICITUD DE PATENTE DE INVENCION No. 03.047.664 PUBLICADA EN
LA GACETA No. 547 DE FECHA 30 DE DICIEMBRE DE 2004**

ALVARO CORREA ORDOÑEZ, identificado como aparece al pie de mi firma, actuando como agente oficioso de la sociedad C.I. PRECONCRETOS RAHS LTDA. (opositor), sociedad constituida de conformidad con las leyes colombianas y domiciliada en Bogotá, Colombia, presento oposición a la solicitud de patente de invención denominada "Alojamiento para hombro de placas fundidas y hombreras que permite el montaje de grampas elásticas de fijación de carriles ferroviarios" radicada por la sociedad I.A.T. Ltda. (solicitante) bajo el expediente No. 03.047.664 en los siguientes términos:

I. INTERES

A mi representada, le asiste el legítimo interés para presentar estas observaciones, por cuanto una de sus actividades principales es la producción y distribución de elementos para las líneas ferroviarias, incluyendo la producción, venta y comercialización de ganchos y hombros para la sujeción de los carriles ferroviarios tal y como los que se pretenden proteger en la solicitud de patente en este expediente. Por consiguiente, mi

representada puede verse afectada de manera perjudicial e injustificada si la patente de invención solicitada en este expediente es concedida, en atención a su falta de novedad y además no es clara ni completa su descripción.

II. HECHOS

1. La patente de invención solicitada aparece publicada en la página 352 de la Gaceta de Propiedad Industrial No. 547 del 30 de diciembre de 2004 (ver anexo 1)

2. a- La solicitud en referencia fue solicitada el 5 de junio de 2003 reclamando prioridad de la solicitud de patente brasileña No. PI 0202476-4 de fecha 17 de junio de 2002

b- Como podrá observar el Examinador, las características más predominantes del alojamiento para hombro de la invención son: las grampas de sujeción son posicionadas en el durmiente directamente en la fábrica lo cual permite que los durmientes sean posicionados en el lecho de la vía férrea con las grampas ya instaladas.

Particularmente, los hombros de la invención están dotados de dientes donde es encajada la grampa quedando apresada en el premontaje; la anterior disposición permite que una vez la línea férrea ha sido instalada, la grampa se instala por medio de una operación única por medio de la utilización de una palanca apropiada.

3. Según el Artículo 14 de la Decisión 486 de la Comisión de la CAN, para ser concedida una patente de invención, el objeto de la solicitud debe gozar de novedad, nivel inventivo y aplicación industrial. Para determinar el alcance del concepto de novedad, se debe tener en cuenta que el estado de la técnica, para este caso, incluye toda divulgación anterior al 17 de junio de 2002.

4. Adjunto al presente documento copia de las patentes US 5.110.046 y US 4.463.898 (Anexo 2) las cuales constituyen prueba fehaciente de la falta de novedad de la solicitud colombiana. En concreto, la patente US 5.110.046 se refiere a la incorporación de una placa metálica entre la barra de concreto y el hombro para evitar el desgaste de las piezas. De igual manera, la patente US 4.463.898 se refiere a un sistema de fijación de los rieles ferroviarios que por medio de la adaptación de los

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clips permite que se disminuya el movimiento longitudinal de los rieles por medio de incrementar la presión lateral en los rieles. En esa medida, las patentes anteriores demuestran la existencia del mecanismo que pretende reclamar la solicitante mediante la solicitud colombiana No. 03.047.664.

5. Adicional a lo anterior, comparto con ese Despacho los comentarios que al respecto a ofrecido el Ing. Eliseo Bandala de la firma Rocla Concrete Tie, Inc., así:

"Evidentemente las patentes 5'110,046 y 4'463,898 hacen referencia al inserto de acero tratado en la almohadilla diseñada contra la abrasión y la función de restricción al movimiento lateral del riel por parte del aislador eléctrico respectivamente. Sin embargo, te comento lo siguiente:

1. *La principal ventaja del sistema FASTCLIP es que el conjunto de fijación se pre-ensambla en la planta de traviesas, lo que conlleva grandes ahorros (tiempo y \$) en la instalación de la vía. A esta función se le denomina como cautiva.*
2. *El sistema FASTCLIP se introdujo al mercado en los EUA en 1995 y es actualmente utilizado por Trenes de Pasajeros.*
3. *La patente de este sistema pudiera haber entrado en vigencia en los EUA poco antes de 1995.*

Tengo entendido que IAT persigue una patente o un modelo de utilidad, mismo que habilitaría al sistema FASTCLIP como el único sistema cautivo en Colombia. Esta patente no se debe permitir ya que la capacidad de ser pre-ensamblada sobre la traviesa no es exclusiva del sistema. Prueba de ello es que existen otras compañías que han desarrollado otro tipo de fijaciones cautivas. De cualquier forma la patente data de por lo menos 10 años y en todo caso este sería un factor determinante."

En consecuencia, el alojamiento para hombro de placas fundidas y hombreras que permite el montaje de grampas elásticas de fijación de carriles ferroviarios de la solicitud de IAT Ltda.. carece de novedad.

6. De acuerdo con el artículo 28 de la Decisión 486, la solicitud debe cumplir con tener una descripción que divulgue la invención de manera suficientemente clara y completa para su comprensión y para que una persona capacitada en la materia técnica correspondiente pueda ejecutarla.

De acuerdo con lo anterior y analizando la descripción y dibujos presentados en la solicitud de patente objeto de esta oposición se puede establecer que dicho alojamiento que se reivindica no ha sido descrito y en su lugar da la impresión de que se trata de un método para colocar la grampa al hombro del durmiente. Por medio de

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los dibujos el capacitado en la técnica llega a estar más confundido cuando observa la figura 2 y la figura 3 de la invención, las cuales técnicamente no coinciden y además no hay una figura que muestre claramente el objeto de la invención. Así consideramos que esta solicitud carece de suficiencia de descripción haciendo imposible que una persona capacitada en la materia pueda entender con claridad la invención.

III. PETICIÓN

En atención a los hechos anteriormente expuestos y a las pruebas aportadas, considero que es evidente la falta de novedad y de nivel inventivo e insuficiencia de descripción de la invención reclamada en la presente solicitud. Por consiguiente, comedidamente ruego a ese Despacho rechazar la patente solicitada por la empresa IAT Ltda. en este expediente.

De igual manera, solicito me sea concedido el plazo de sesenta días adicionales para sustentar esta oposición tal y como lo dispone el artículo 42 de la Decisión 486, para lo cual adjunto recibo por \$66,000.

IV. PRUEBAS

ANEXO 1. Copia de la publicación

ANEXO 2. Copia de las patentes US 5.110.046 y US 4.463.898

V. DERECHOS

Adjunto un recibo por un valor de \$ 235.000 correspondiente a la tramitación de la presente oposición.

VI. TRASLADO

Presento con este memorial copia del presente escrito de observaciones, para su traslado al solicitante.

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VIII. NOTIFICACIONES

Mi representada y yo recibiremos notificaciones en la Secretaría de la División de Propiedad Industrial, y en mi oficina situada en la dirección que aparece al pie de mi firma. La sociedad demandada y su apoderado las recibirán en la dirección indicada por este último en la solicitud inicial.

Atentamente,

ALVARO CORREA ORDÓÑEZ
C.C. 79.143.366 de Usaquén
T.P. 20.281

Anexos: Anexo 1: Copia de la publicación

Anexo 2: Copia de las patentes US 5.110.046 y US 4.463.898

Anexo 3: Recibo por Oposición No.05-11,921 por \$235,000

Anexo 4: Recibo para Plazo No.05-12,021 por \$66,000

DILIGENCIA DE RECONOCIMIENTO Y PRESENTACION PERSONAL

Ante el Notario Once del Circuito de Bogotá, compareció ALVARO CORREA ORDÓÑEZ

Quien exhibió la C.C. No. 79.143.366

expedida en Usaquén

y declaró que la firma y huella que aparece en el presente memorial son suyas y que el contenido del mismo es cierto.

Memorial dirigido a Sociedad de Bogotá, S.C.

Bogotá, D.C. 31 MAR 2005

El suscrito Notario, al ver la

Aprobado en exterior, Diligencia

BOGOTÁ, D.C.

MONICA Z. BAUTISTA R.

NOTARIA ONCE (E)

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SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO	
SOLICITUDES DE PATENTES DE INVENCION	
GACETA No. 547 Página. 352	
(19) CO	(11) N° de publicación: 291 (21) N° de solicitud: 03 047.664 (51) Int Cl: E01B 008/000
(12) Solicitud de patente de invención sin examen previo	
(22) Fecha de solicitud: 05/08/2003 (30) Prioridad (31) PI 0202476-4 (32) 17/08/2002 (33) BR	(71) Solicitante(s) IAT LTDA. (72) Inventor(es) SIEGFRIED ALEXANDER ELLWANGER (74) Agente: EMILIO FERRERO
(43) Fecha de publicación: 30/12/2004	
(54) Título: ALOJAMIENTO PARA HOMBRO DE PLACAS FUNDIDAS Y HOMBRERAS QUE PERMITE EL MONTAJE DE GRAMPAS ELÁSTICAS DE FIJACIÓN DE CARRILES FERROVIARIOS.	
(57) Resumen: 1.- Alojamiento para hombro de placas fundidas y hombreras que permite el montaje de grampas elásticas de fijación de carriles ferroviarios, CARACTERIZADO porque en las caras opuestas del alojamiento (3) destinado a alojar las grampas en la placa (1) con hombreras (2) se practican dientes (4) que permiten retener la grampa hasta el momento de su fijación definitiva en el lugar de asentamiento del carril. 2.- El alojamiento de acuerdo con la reivindicación 1ª, CARACTERIZADO porque cada grampa es montada en el diente (4) de la placa en la fábrica de durmientes.	

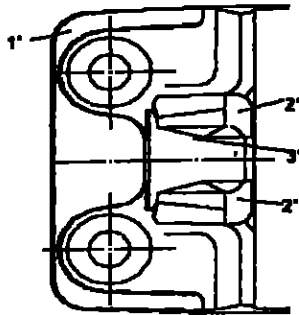


FIG. 1

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[54] RAIL FASTENERS

[76] Inventors: Hartley F. Young, 200 Coburns Rd.,
Melton, Victoria; Wally A. Barnes,
No. 7 S. Court, Redwood Park,
South Australia, both of Australia

[21] Appl. No.: 237,124

[22] PCT Filed: Jul. 3, 1980

[86] PCT No.: PCT/AU80/00028

§ 371 Date: Feb. 10, 1981

§ 102(e) Date: Feb. 10, 1981

[87] PCT Pub. No.: WO81/00121

PCT Pub. Date: Jan. 22, 1981

[30] Foreign Application Priority Data

Jul. 5, 1979 [AU] Australia PD9465

[51] Int. Cl.³ E01B 9/30

[52] U.S. Cl. 238/310; 238/349;
238/351

[58] Field of Search 238/310, 315, 283, 349,
238/338, 351; 174/138 R

[56] References Cited

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3,297,253 1/1967 Astley et al. 238/349
3,460,756 8/1969 Samson 238/338

3,463,394 8/1969 Jones et al. 238/338
3,610,526 10/1971 Burwell 238/349 X
4,104,483 2/1978 Sedley 238/338
4,274,582 6/1981 Fee 238/349
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4,313,563 2/1982 Young 238/349

FOREIGN PATENT DOCUMENTS

226776 6/1959 Australia .
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415933 10/1969 Australia .

Primary Examiner—Joseph F. Peters, Jr.

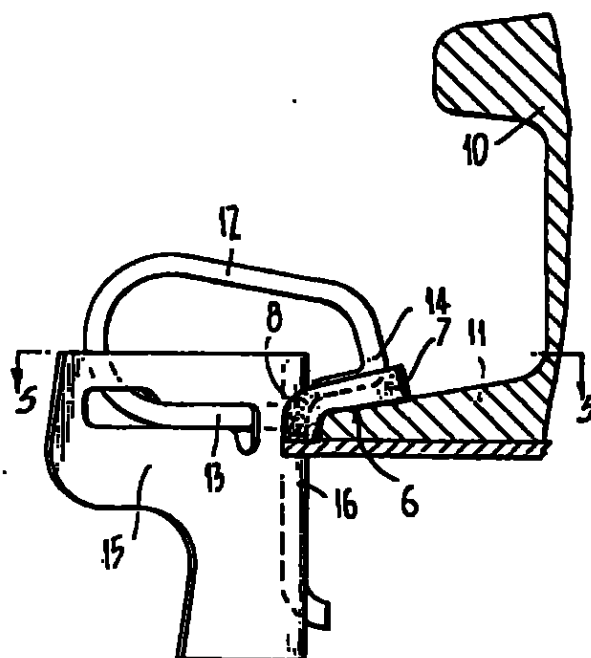
Assistant Examiner—Mitchell J. Hill

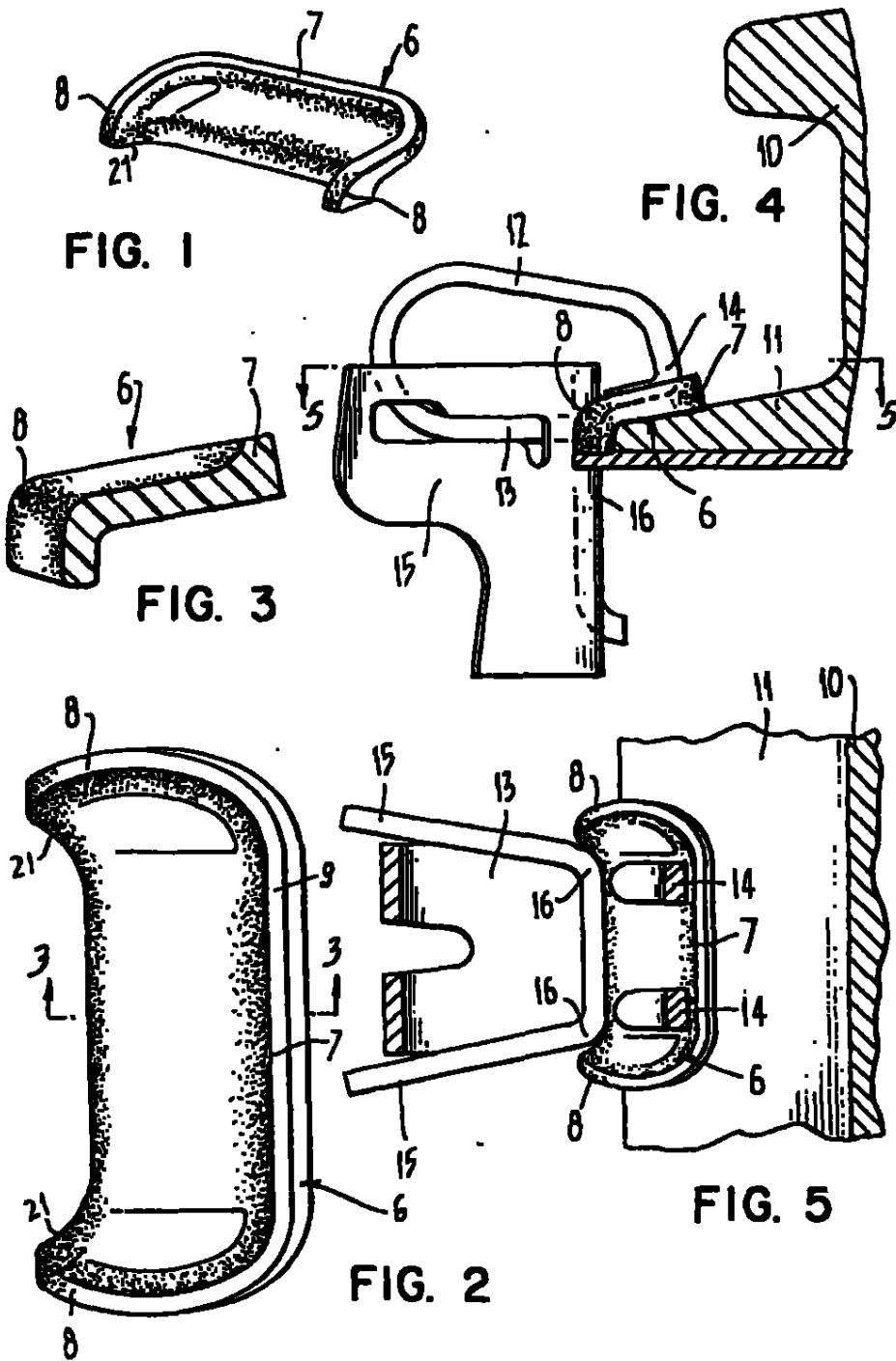
Attorney, Agent, or Firm—Christel, Bean & Linihan

[57] ABSTRACT

A rail to tie fastening including an elastic clip (12) a clip holder (15) and a locking element (6). The locking element (6) being interposed between the foot of the rail (11) and the clip holder (15) and, between the foot of the rail (11) and the clip (12) and is forced by the clip (12) against the foot (11). The locking element (6) is so shaped that any movement of the locking element (6) parallel to the rail (11), induced by longitudinal movement of the rail (11), results in the locking element (6) wedging between the clip holder (15) and the foot of the rail (11) so increasing lateral pressure on the rail to prevent further longitudinal rail movement.

5 Claims, 5 Drawing Figures





RAIL FASTENERS

This invention relates to an improvement in elastic rail fasteners particularly those which use a rail clip and a clip holder. The purpose of the clip holder is to secure the rail clip to a rail sleeper and enables the rail clip to bear down on the rail flange.

Numerous elastic rail fastening systems of this type have been devised. Any rail fastening system must be able to maintain the rail in position under the normal stress conditions arising from use of the rails and from environmental stresses particularly thermal stresses. Modern rail systems are adopting welded rails and thermal stresses are a predominant factor in welded rails. It has been observed that a major long term difficulty with rails is the tendency of the rails to move in the predominant direction of travel for trains on the rail track. This tendency is called rail creep and it is most important that any elastic rail fastening systems not only prevent lateral rail movement but also prevent axial movement or rail creep.

Past attempts to reduce rail creep have concentrated on increasing the hold down force of the rail clip on the rail flange or on increasing the frictional resistance between the rail, the sleeper and the clip by, for example, carefully selecting material to be used as rail pads between the rail and the sleeper.

It is an object of this invention to reduce rail creep as compared to conventional elastic fastening systems.

To this end the present invention provides a locking element for use with a rail fastening system comprising an elastic rail clip, a clip holder adapted to hold the clip in position on the flange of the rail. The locking element is adapted to lie between the rail flange and the rail clip holder, and the locking element is held down onto the rail flange by the rail clip, and the clip holder interfits with the locking element such that any movement of the locking element in a direction parallel to the rail axis is at least partially translated into a lateral pressure of the locking element against the rail.

Ideally a portion of the abutting surfaces of the locking element and the clip holder are inclined to the axis of the rail so that any movement of the locking element parallel to the rail results in the locking element being wedged inwardly against the rail, thereby increasing contact pressure on the rail from a horizontal lateral direction. Prior art fastening systems only applied a vertical hold down force to the rail flange. The present invention however is able to apply both a vertical and horizontal force to the rail and this additionally restrains rail creep. Either locking element or the clip holder includes a U shaped recess into which the other part interfits and either the corners of said U have a radius of curvature of at least 6 mm or the sides of said U are inclined to the base of said U at an angle of at least 100°.

The locking element of this invention ideally doubles as an insulator between the rail clip and the rail flange. In the prior art insulators of this kind have been described for example in U.S. Pat. Nos. 3,610,526 to Burwell (see FIG. 4), 3,460,756 to Sanson, 3,463,394 to Jones et al. None of the insulators described in these patents or insulators used in practice in the prior art functioned as locking elements. The interaction of the surface of the insulator against the clip holder in the prior art did not result in longitudinal movement of the insulator being translated into lateral pressure on the

edge of the rail foot. In each of the prior art insulators, the insulators and their associated rail clip holders are not shaped to provide a wedge like interfitting. Rather the angles at the corners of the rail clip holders and internal corners of the insulators adjacent the clip holders are effectively right angles.

From the above it can be seen that the locking element of the invention must be shaped to lie on top of the rail flange and on the shoulder or side of the rail flange so that it lies between the rail clip and the top surface of the rail flange and lies between the clip holder and the side of the rail flange. Preferably the locking element includes a U shaped portion which surrounds the clip holder. The internal faces of the U portion, which abut the rail clip are either curved or inclined inwardly toward the rail ensuring that longitudinal movement is translated into the lateral direction toward the rail. It is preferred to select the material for the locking element on two criteria: strength and frictional resistance of the surface. Both metal or a reinforced plastic are considered to be suitable.

The rail clip and clipholder preferred for use with the locking element of this invention are described in Australian patent application 54004/79.

A preferred embodiment of this invention will now be described in relation to FIGS. 1 to 4 of the drawings.

FIG. 1 is a pictorial view of the locking element.

FIG. 2 is a plan view of the locking element.

FIG. 3 is a sectional view taken about on line 3—3 in FIG. 2.

FIG. 4 is a sectional view of a rail fastening system incorporating the locking element, and

FIG. 5 is a plan view of the system shown in FIG. 4 and taken about on line 5—5 in FIG. 4.

The locking element 6 includes a portion 7 which lies on the rail flange and two shoulders 8 which encompass the clip holder. The element further comprises an outer rim 9 and the shoulders include in their leading edge the inclined wedging surface 21.

As shown in FIGS. 3 and 4 the rail fastening system comprises a rail 10 with a rail flange 11, a rail clip 12 secured in clip holder 15. The rail clip comprises a base portion 13 and spring portion 14 which seats on the locking element portion 7 and effectively holds down the rail flange. The clip holder is formed from pressed metal plate and has rounded shoulders 16 which seat within the shoulders 8 of locking element 6. In particular, the rail clip 12 is an elastic, U-shaped member having base 13 and two arms extending therefrom providing the spring portion 14. The base 13 is adapted to be secured by clip holder 15 to the tie outwardly spaced from the foot of rail 10. The arms of spring portion 14 are bent inwardly beyond base 13 and oriented for contact with the flange of rail 10 such that the arms are deflected upwardly relative to rail 10 to develop downward clamping forces tending to hold rail 10 on the tie. Preferably each arm of spring portion 14 is tapered and this tapering is preferably substantially uniformly over the entire length of each arm. Clip holder 15 is adapted to be secured to the rail tie and has a general U shaped body portion with the sides of the U being slotted toward the base of the U and the slots adapted to receive the base 13 of clip 12. The U cross section of clip holder 15 is in the horizontal plane and the slots are generally horizontal. The sides of the U slope inwardly to guide clip 12 into position and to enable insertion of the clip base 13 into the slots.

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Any rail creep will tend to drag the locking element past the clip holder but the wedging action of the surface 21 of shoulders 8 of the locking element 6 and shoulders 16 of the clip holder 15 will increase the lateral hold of the locking elements on the rail flange.

In this embodiment the rail is electrified and the locking element 6 doubles as an insulator and is accordingly composed of glass filled nylon. To improve the friction properties of the locking element the face of the locking element which abuts the rail may be roughened or textured either by sandblasting or other suitable means.

A comparison test was carried out with an insulator which did not produce a lateral wedging action by dragging a rail through the rail seat past the clipholder and measuring the resistance force. Then the test was repeated with an identical insulator except that a lateral wedging action was produced according to this invention. These tests were repeated several times.

In each case there was a significant increase in the force required to achieve significant rail creep when the locking element of this invention was used. Significant rail creep is considered to occur with rail movement of from 3 to 6 mm. The smallest increase in rail creep resistance force between using a locking element which created no wedging action and the locking element of this invention was 79% while the largest difference was 110%.

The locking element insulator 6 is a key element in preventing rail creep (i.e. longitudinal movement of the rail). As well because it is a separate part from the clip holder and is subject to more stress it can be easily and inexpensively replaced without replacement of the clip holder which is not the case in some prior art systems where clip holders encapsulated in insulating plastic have been used.

Thus the present invention clearly provides a marked improvement over prior art fastening systems without the need of increasing the hold down force capacity of the rail clip. Moreover, the increased cost in making fastening systems of the present invention is small or negligible where insulators are required in any case.

We claim:

1. A rail fastening system comprising an elastic rail clip, a clip holder adapted to hold the clip in position on the flange of the rail and a locking element being adapted to lie between the rail flange, the rail clip and the clip holder, said rail having a longitudinal axis, said locking element being held down onto the rail flange by

the rail clip to apply a generally vertical holding force to the rail and said clip holder interfitting with said locking element such that any movement of said locking element induced by the rail in a direction parallel to the rail longitudinal axis is at least partially translated into a lateral pressure of said locking element against said rail in an amount sufficient to apply a generally horizontal holding force to the rail, said vertical and horizontal forces serving to retard longitudinal movement of the rail, said clipholder having an external face complementary in shape with said locking element to provide a wedge-like interfitting, the complementary shape being in the form of a U wherein the corners of the U have a radius of curvature sufficient to provide a wedging action which translates said movement of said locking element into said lateral pressure and where each side of the U is inclined at an angle to the base of the U sufficient to provide a wedging action which translates movement of said locking element into said lateral pressure.

2. A system as claimed in claim 1 wherein said locking element includes a U shaped portion which fits about the rail clip holder and the corners of said U portion have a radius of curvature sufficient to provide a wedging action which translates said movement of said locking element into said lateral pressure.

3. A system as claimed in claim 1 wherein said locking element includes a U shaped portion which fits about the rail clip holder and each side of said U portion is inclined at an angle to the base of said U portion sufficient to provide a wedging action which translates said movement of said locking element into said lateral pressure.

4. A system as claimed in claim 1 in which the locking element fits within a U shaped recess of said clip holder and the radius of curvature of the corners of said U shaped recess is sufficient to provide a wedging action which translates said movement of said locking element into said lateral pressure.

5. A system as claimed in claim 1 wherein the locking element fits within a U shaped recess of said rail clip holder and each side of said U shaped recess is inclined at an angle to the base of said U shaped recess sufficient to provide a wedging action which translates said movement of said locking element into said lateral pressure.

* * * * *

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[54] RAIL FASTENING SYSTEM
[75] Inventor: Hartley F. Young, Melton, Australia
[73] Assignee: McKay Australia Limited,
Maidstone, Australia

1,772,875 8/1930 O'Brien 238/283
2,057,955 10/1936 Kahn 238/283
2,770,421 11/1956 Wilson 238/283
3,581,990 10/1968 Kirik 238/287 X
4,925,094 5/1990 Buckett 238/283 X

[21] Appl. No.: 489,498

[22] Filed: Mar. 7, 1990

[30] Foreign Application Priority Data

Mar. 9, 1989 [AU] Australia PJ3138

[51] Int. Cl.³ E01B 9/38

[52] U.S. Cl. 238/283; 238/287

[58] Field of Search 238/272, 274, 283, 287,
238/301, 307, DIG. 1

[56] References Cited

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Primary Examiner—David A. Bucci

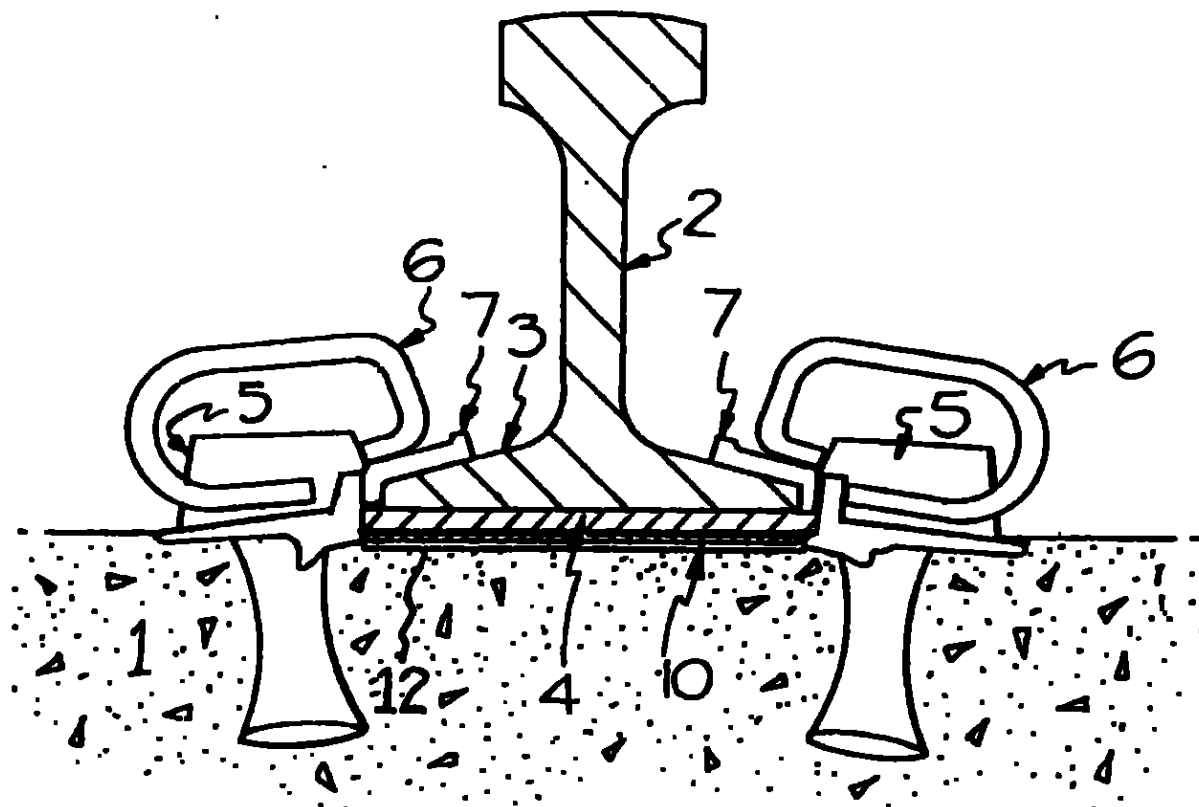
Assistant Examiner—James Keenan

Attorney, Agent, or Firm—Hodgson, Russ, Andrews,
Woods & Goodyear

[57] ABSTRACT

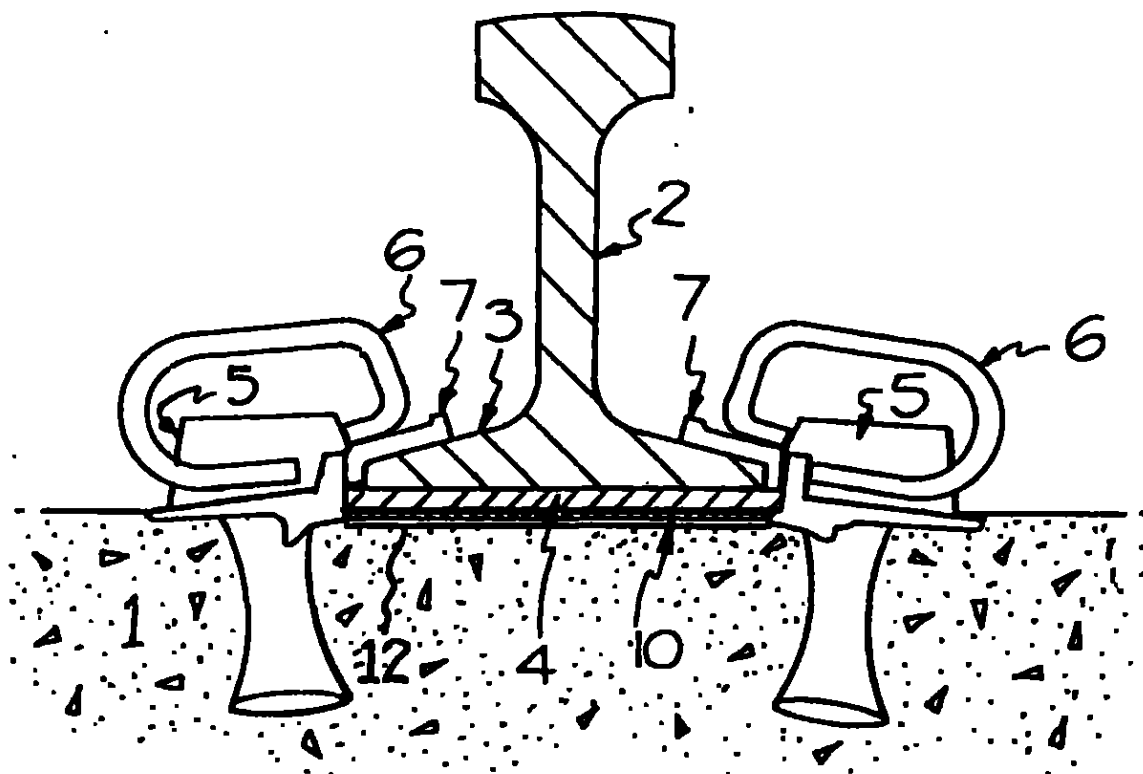
A rail seat resistant to abrasion of the concrete rail tie incorporates a thin metal plate between the rail tie and the elastomeric rail pad which insulates the rail from the rail tie. The plate may be bonded to the rail tie or a resilient gasket can be interposed between the rail tie and the plate.

3 Claims, 2 Drawing Sheets



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FIGURE. 1



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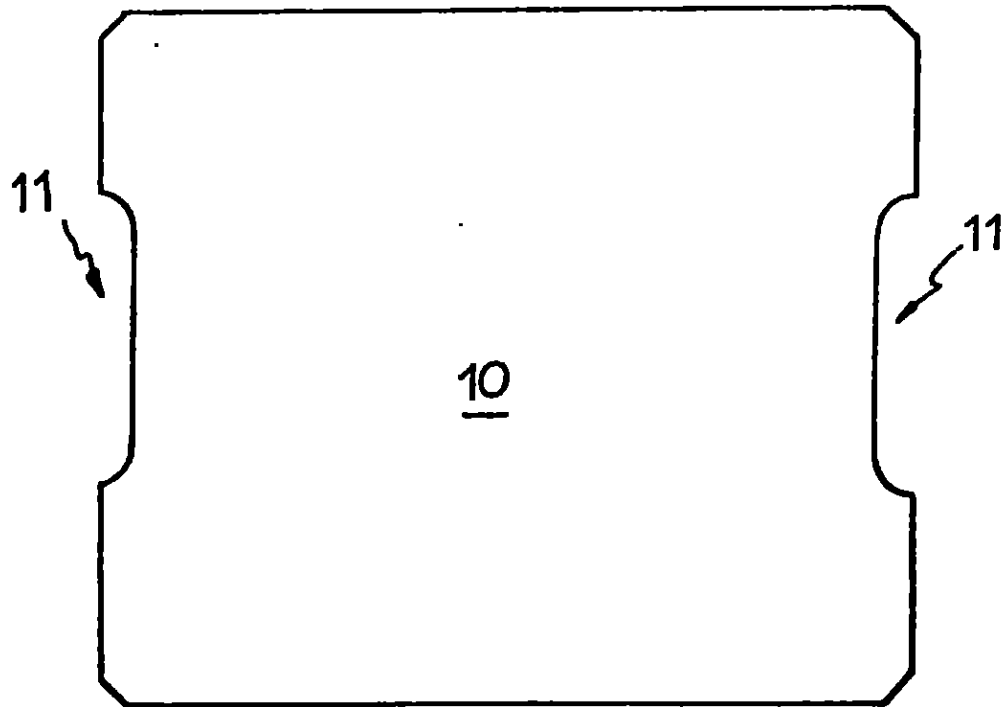


FIGURE 2

RAIL FASTENING SYSTEM

BACKGROUND OF THE INVENTION

This invention relates to improvements in rail fastening systems where rails are elastically fastened to rail ties. In particular this invention relates to rail fastening systems utilizing concrete rail ties.

Conventionally rails are held to rail ties by rail clips or fasteners which bear down on the rail flange. A rail pad located beneath the rail and composed of elastomeric material such as rubber, polyurethane, ethylvinylacetate or high density polyethylene insulates the rail from the rail tie. This pad has a field side on the outer side of the rail and gauge side on the inner side of each rail.

Concrete rail ties have been found to be prone to wear particularly in sandy locations. This invention is partly predicated on discovering the cause of this wear. As each loaded bogey passes over the tie, the rail pad deflects vertically and thus acts as a shock absorber. However, due to the poisons ratio of the materials used the pad must also deflect horizontally which means that every vertical load pulse causes the pad face to slide horizontally over the concrete tie.

In normal use this causes slight wear to the pad and practically no wear to the concrete face. However, in the presence of sand particles the grains of sand imbed themselves into the relatively soft pad material and slide on the concrete face. The same particles cut the concrete paste in the mortar causing abrasion to the concrete paste and mortar which can shorten the working life of the concrete rail tie.

SUMMARY OF THE INVENTION

It is an object of this invention to overcome this difficulty with rail clamping systems on concrete ties.

To this end the present invention provides an abrasion plate for insertion between the rail pad and the rail tie.

The rail seat abrasion can be prevented or at least greatly reduced by the use of an abrasion plate made from very hard material such as heat treated steel.

The plate is used between the bottom face of the rail pad and the top face of the tie rail seat and works in the following manner:

As the load pulse is transmitted through the rail to the rail seat the rail pad deflects vertically and horizontally as normal, but the abrasion plate is made from such hard stiff material that there is no significant horizontal deflection of the plate and therefore no relative motion between the abrasion plate and the concrete rail seat face, so any sand particles at this interface do not cause abrasion since there is no horizontal motion.

The horizontal movement of the rail pad now takes place at the interface on top of the abrasion plate, so any sand particles here will tend to wear the abrasion plate. This plate is preferably made from heat treated high carbon steel to hold the wear rate of the abrasion plate down to a slow rate. Of course, the abrasion plate can be replaced when it is worn out.

The abrasion plate is preferably captive between the two support shoulders in the rail seat and after first being installed it may move slightly to take up any clearance between the abrasion plate and shoulders. However once in this position it should not move significantly due to the clamping force of the rail clips. When

the rail pad deflects sideways, it moves in all horizontal directions which tend to cancel out any net horizontal forces to such an extent that they are not high enough to cause the abrasion plate to oscillate relative to the concrete rail seat face.

It is essential to provide an effective seal between the plate and concrete rail tie. Preferably the abrasion plate may be adhered to the surface of the concrete tie to ensure that ingress of abrasive particles and water onto the surface of the rail tie is avoided.

The abrasion plate is preferably made from thin material (about 1 mm thick) so that the plate may be used under the rail pad without any significant change in rail clip vertical deflection. Thus, the abrasion plate may be used in standard rail fastening assemblies only where rail seat abrasion is likely to take place.

BRIEF DESCRIPTION OF THE DRAWING

A preferred embodiment of the invention is shown in FIGS. 1 and 2 wherein FIG. 1 provides a cross-sectional view of a rail seat according to this invention and FIG. 2 is a plan view of the abrasion plate.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

The concrete rail tie 1 supports a rail 2 which has flanges 3 and sits on a rail pad 4 interposed between rail 2 and the concrete tie 1.

The rail is held in place by rail clamp 6 which is held in clamp support 5 embedded in the concrete tie 1. The toe portion of the clamp 6 bears down on rail flange 3 through the insulator 7.

The improvement of this invention is to provide an abrasion plate 10 between the pad 4 and the tie 1. The plate 10 is smooth edged and incorporates recesses 11 to fit around the clamp supports or shoulder 5.

The plate 10 may be bonded by layer 12 of adhesive (epoxy resin adhesives are preferred) to the tie 1 or an HDPE closed cell foam of 1.5 mm thickness of the same size and shape as plate 10 fitted between plate 10 and tie 1.

From the above it can be seen that this invention provides a unique solution to the problem of wear on concrete rail ties.

The claims defining the invention are as follows:

1. An abrasion resistant rail seat for securing a rail to a concrete rail tie of the type in which the rail has a flange and is secured to a concrete rail tie by elastic rail clamps and an elastomeric rail pad insulates the rail from the rail tie, the improvement comprising interposing an abrasion resistant plate between said rail pad and said rail tie, said abrasion resistant plate forming a water tight seal with said rail tie, said abrasion resistant plate being wider than said rail and extending beyond the flange of said rail, and a layer of adhering material between said abrasion resistant rail plate and said rail tie for adhering said plate to said tie, said material being the sole means for adhering said plate to said tie so that replacement of said abrasion resistant rail plate is facilitated.

2. A rail seat as claimed in claim 1, wherein the plate is of metal approximately one millimeter thick.

3. A rail seat as claimed in claim 2, wherein said adhering material is a closed cell foam pad of one to two millimetres in thickness and of similar shape to said plate.

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ADMINISTRACION I
ASOCIACION : VENEZOLANOS
FECHA : 16/02/2005
VIAJE : AL EXTERIOR
REFERENCIA : LUGAR DE TRABAJO DE ALVARO CORREA

SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO

MIT : 800176089-2

RECIBO OFICIAL DE CAJA : 05 - 11,921
FECHA : FEBRERO 16 DE 2005

***** CONSIGNACION *****

DEPOSITANTE	TIPO PAGO	BANCO	CUENTA	No. PAGO	FECHA PBO	Vr. PAGO
ALVARO CORREA ORDONEZ	CONSIGNACION	BANCO POPULAR	050-00110-6	32710279	16/02/2005	82,985,000.00

***** CONCEPTO *****

CANT.	RENTISTICO	CONCEPTO	TOTAL CONCEPTO
1	50005-01-04	PRESENTACION DE OBSERVACIONES	
12		MARCAS Y LEMAS COMERCIALES	235,000.00
		TOTAL :	\$ 235,000.00

SOM: DOSCIENTOS TREINTA Y CINCO MIL PESOS

RESPONSABLE : 

RECIBO DE CAJA APLICADO AL EXPEDIENTE No. _____

106

RECEPCION DE PAGOS
RECIBOS : 00176089-2
Fecha (Act): 2005-03-31 17:09:00
Módulo : 00176089-2
Representación: 2005 División de Recaudación

SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO

NIT : 900176089-2

RECIBO OFICIAL DE CAJA : 05 - 12,021
FECHA : FEBRERO 16 DE 2005

***** CONSIGNACION *****

DEPOSITANTE	TIPO PAGO	BANCO	CUENTA	No. PAGO	FECHA PGO	Vr. PAGO
ALVARO CORREA ORDONEZ	CONSIGNACION	BANCO POPULAR	050-00110-6	32718279	16/02/2005	82,985,000.00

***** CONCEPTO *****

CANT.	RENTISTICO	CONCEPTO	TOTAL CONCEPTO
1	50005-01-08	PRORROGA DE TERMINOS	66,000.00
		TOTAL :	66,000.00

SOM: SESENTA Y SEIS MIL PESOS

RESPONSABLE : 

RECIBO DE CAJA APLICADO AL EXPEDIENTE No. _____

DIVISION DE NUEVAS CREACIONES

RADICACIÓN EXPEDIENTE No 03-047664

**EL EXTRACTO DE LA PRESENTE SOLICITUD DE PATENTE DE INVENCION
FUE PUBLICADO EN LA GACETA DE PROPIEDAD INDUSTRIAL No 547, DE
FECHA 30 DE DICIEMBRE DE 2004, EL TERMINO HABIL SEÑALADO POR LA
LEY EXPIRA EL 30 DE MARZO DE 2005**

NOTA: Dentro del plazo de los seis (6) meses siguientes a partir de la fecha de publicación en la gaceta de Propiedad Industrial, deberá solicitar y cancelar el examen de patentabilidad so pena de que la solicitud caiga en abandono, de acuerdo con lo establecido en el Artículo 44 de la Decisión 486/2000.

SE PRESENTARON OPOSICIONES POR PARTE DE TERCEROS.

SI X _____

NO

Bogotá D.C., MAYO DE 2005

2020
Bogotá, D.C.,

Doctor:
Álvaro Correa Ordoñez
Opositor

Oficio N°: 12918

ASUNTO:	Radicación N°	03-47664
	Trámite	002
	Evento	001
	Actuación	330
	Folios	001

Con fundamento en lo previsto por el artículo 42 de la Decisión 486 de la Comisión de la Comunidad Andina, se le comunica que no se acepta y en consecuencia no se corre traslado de la oposición que ha interpuesto, en su calidad de apoderado de la sociedad C.I. Preconcretos Rahs Ltda., dentro de la solicitud de patente de invención que se adelanta en el expediente de la referencia, teniendo en cuenta que fue presentada extemporáneamente, por cuanto el término legal venció el día 30 de marzo del 2005 y el escrito de oposición con sus anexos fue radicado el día 31 del mismo mes y año.

Notifíquese el presente oficio conforme a lo dispuesto en el numeral 5.2, literal e), del capítulo quinto del título primero de la Circular Única N° 10 de 2001.


ALIX CARMENZA CESPEDES DE VERGEL
Jefe de la División de Nuevas Creaciones.

02 JUN. 2005.

El anterior requerimiento fue notificado por fijación en lista de fecha, _____.

202021

8 Jun 2005.



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