

SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO	
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DEP: 2020 DIRECCION DE NUEVAS CREACIONES	EVE: 378 FASE NACIONAL INCLUIDO CAPITULO I
TRA: 11 PCT-PATENTE DE INVENCION CAPITULOS I Y II	FOLIOS: 11
ACT: 519 TRASLADOINFORME	

DIRECCIÓN DE NUEVAS CREACIONES

2020
Bogotá, D.C.,

Abogado(a)/Señor(a)
JUAN PABLO CADENA SARMIENTO

Asunto: Radicación: 14-28689- -6
Trámite: 11
Evento: 378
Actuación: 519
Oficio: 2366
Folios: 11

Patente de Invención	X			Patente de Modelo de Utilidad	
Vía Nacional					
Vía PCT (Fase Nacional)	X	Capítulo I	X	Capítulo II	
No. Solicitud Internacional	PCT/JP2012/004467				
Fecha de Presentación Internacional	11/07/2012				

Como resultado del examen de fondo realizado, con fundamento en el Artículo 45 de la Decisión 486 de la Comisión de la Comunidad Andina, se comunica:

1. Documentos estudiados

Descripción:	Rad. N° 14-028689-00000-0000	11/febrero/2014
Reivindicaciones:	Rad. N° 14-028689-00005-0000	25/enero/2016
Dibujos:	Rad. N° 14-028689-00000-0000	11/febrero/2014
Prioridad:	JP 2011-153718	12/julio/2011

2. Análisis de la Prioridad

Se acepta la reivindicación de prioridad porque ésta solicitud fue presentada dentro del plazo establecido (Art. 9 D 486) y su contenido técnico corresponde con el de la prioridad reivindicada.

3. Objeto de la invención

De acuerdo con lo establecido en el numeral 1.2.2.2 del Capítulo Primero del Título X de la Circular Única para efectos del examen de patentabilidad, se tendrá en cuenta la tasa pagada por el solicitante al momento de comenzar el examen para las reivindicaciones adicionales; esto es que cuando la solicitud contenga más de diez (10) reivindicaciones y no se haya pagado la tasa complementaria, sólo se estudiarán las cubiertas por la tasa pagada. Por lo tanto, se estudiarán las reivindicaciones 1 a 18.

Título de la solicitud: “Hoja de acero para latas y método de fabricarlas” (Página 1, radicado N° 14-028689-00000-0000).

El problema planteado en esta solicitud, consiste en la necesidad de ampliar la aplicación de la hoja de acero DR, buscando hojas delgadas, de alta resistencia que satisfagan tanto la forma de rebordado, como la resistencia a la tensión para su aplicación en alimentos y bebidas.

Para resolver este problema técnico, la solicitud en estudio propone una composición de lámina que incluye carbono de 0,001% y 0,040%, de nitrógeno como AIN no menos que 0,0100% y no más que 0,0160%, de manganeso no menos que 0,10% y no más que 0,60%, de silicio no menos que 0,003% y no más que 0,100%, de fósforo no menos que 0,001% y no más que 0,100%, de azufre no menos que 0,001% y no más que 0,020%, de aluminio no menos que 0,005% y no más que 0,100% y nitrógeno más que 0,0130% y no más que 0,0170% y un método de laminado que consiste en colar continuamente el acero en un desbaste plano, laminar en caliente el desbaste plano, enrollar la hoja laminada, laminar en frío primariamente la hoja laminada en caliente, recocer la hoja laminada en frío primariamente y laminar en frío secundariamente.

El objeto de la presente solicitud se relaciona con la Clasificación Internacional de Patentes (CIP): C21D 9/46, C22C 38/00, C22C 38/06, C22C38/50.

4. De la solicitud de patente

Reivindicaciones (Art 30 D 486)

El capítulo reivindicatorio no es claro porque:

- Los términos de las reivindicaciones 1 a 11, 12, 14, 15, 16 y 18, *“por lo menos”, “no más que”, “no menos que”,* son imprecisos, por lo cual no permite distinguir la invención del estado de la técnica. Se sugiere sustituirlo por un término preciso o un rango concreto.
- En la reivindicación 9, las expresiones: *“laminar en caliente”, “laminar en frío”, “recocer la hoja laminada”,* son generales y no definen con claridad las cantidades o productos a los cuales se refieren, por lo tanto, incluyen todas las posibles alternativas presentes o futuras, se sugiere remplazarlo por las características esenciales para definir con precisión lo que se desea proteger.
- En las reivindicaciones 9 y 18, los términos: *“con una reducción de no menos que 91,5%”, “en donde la hoja de acero tiene un contenido (N total - N como AIN) de no menos que 0,0100% y no más que 0,0160% en donde N total es la cantidad total de nitrógeno y N como AIN es la cantidad de nitrógeno presente como AIN, la hoja de acero para latas tiene un valor r medio de más que 1,0”,* están representados como un efecto o resultados a obtener, puesto que, dichas características dependen del método reivindicado, por lo cual no se puede aceptar, debido a que, equivaldría a definir el problema técnico a resolver, además el alcance de esta reivindicación incluiría todas las alternativas presentes o futuras que lleguen a ese resultado se sugiere remplazarlos por las características esenciales o eliminarlos para dar concisión a las reivindicaciones.

- El procedimiento de la reivindicación 9 no se encuentra correctamente definido, por cuanto alguna de sus etapas indican “colar continuamente el acero en un desbaste plano”, “laminar en caliente el desbaste plano”, “decapar”, “galvanizar la hoja laminada”, sin embargo, no muestran en su parte caracterizante las etapas técnicas con sus condiciones técnicas (temperaturas, flujos, presiones, etc.), por lo anterior estas reivindicaciones no son claras. Se sugiere realizar las aclaraciones respectivas o definir la invención por sus características esenciales y estructurales, teniendo en cuenta de no modificar o ampliar la material ya divulgada.

5. Determinación del Estado de la Técnica

El estado de la técnica se determinó con base en la fecha de prioridad de la solicitud: julio 12 de 2011, y se encontraron los siguientes documentos que anticipan el objeto de esta solicitud:

Ítem	Documento	Título	Fecha de Publicación
D3	US 2009/250147	“Dr Steel Sheet and Manufacturing Method Thereof”	08/10/2009
D4	US 2011/076177	“High-strength steel sheet for cans and method for manufacturing the same”	31/03/2011

El documento D3¹ divulga una lamina de acero DR la cual incluye los siguientes componentes de acero: C: 0,02-0,06% en masa, Si: igual a o menor que 0,03% en masa, Mn: 0,05 a 0,5% en masa, P: igual a o menor que 0,02% en masa, S: igual o menor que 0,02% en masa, al: 0,02-0,10% en masa, y N: 0,008 a 0,015% en masa. La cantidad de N soluto (Ntotal-N como AlN) en la chapa de acero que contiene un hierro residual e impurezas inevitables, es igual o más de 0,006%; y la capacidad de estiramiento total en una dirección de laminación después del envejecimiento es igual o más de 10%, capacidad de estiramiento total en una dirección de la anchura de hoja después del envejecimiento es igual o más de 5%, y un valor medio Lankford después del envejecimiento es igual o inferior a 1.0 (Resumen).

El documento D4² divulga una lámina de acero para latas que tiene una tensión de fluencia de al menos 500 Mpa después del recubrimiento y del horneado y un método para la fabricación de la lámina de acero para latas (Resumen).

6. Examen de Patentabilidad (Art 14 D486)

Novedad (Art16 D486)

La reivindicación 1 consiste en: “Una hoja de acero para latas que tiene una composición química que contiene, en % en masa...”, (Ver Pág. 17 Rad. N° 14-028689-00005-0000).

Comparación de las características técnicas esenciales, con las del estado de la técnica:

Características Esenciales	D3
Una hoja de acero para latas que tiene una composición química que contiene, en % en masa:	Una hoja de acero DR que comprende los siguientes componentes de acero (Reivindicación 1).
C: no menos que 0,020% y no más que 0,039%,	C: 0,02 hasta 0,06% en masa (Reivindicación 1).
Si: no menos que 0,003% y no más que 0,100%,	Si: igual a o menor que 0,03% en masa (Reivindicación 1).

1 http://worldwide.espacenet.com/publicationDetails/biblio?CC=US&NR=2009250147A1&KC=A1&FT=D&ND=&date=20091008&DB=&locale=en_EP

2 http://worldwide.espacenet.com/publicationDetails/biblio?CC=US&NR=2011076177A1&KC=A1&FT=D&ND=&date=20110331&DB=&locale=en_EP

Mn: no menos que 0,10% y no más que 0,60%,	Mn: 0,05 a 0,5% en masa (Reivindicación 1).
P: no menos que 0,001% y no más que 0,100%,	P: igual a o menor que 0,02% en masa (Reivindicación 1).
S: no menos que 0,001% y no más que 0,020%,	S: igual a o menor que 0,02% en masa (Reivindicación 1).
Al: no menos que 0,005% y no más que 0,100%, y	Al: 0,02 a 0,10% en masa (Reivindicación 1).
N: más que 0,0130% y no más que 0,0170%,	N: 0,008-0,015% en masa (Reivindicación 1).
en donde el resto corresponde a Fe e impurezas inevitables,	Contiene hierro residual e impurezas inevitables (Reivindicación 1).
la hoja de acero tiene un contenido (N total - N como AlN) de no menos que 0,0100% y no más que 0,0160% en donde N total es la cantidad total de nitrógeno y N como AlN es la cantidad de nitrógeno presente como AlN,	Por otro lado, si la cantidad de N soluto excede de 0,015%, la fragilidad de la lámina de acero se hace notable, lo que puede resultar en reducción de la capacidad de estiramiento y la porosidad defecto total debido a grietas losa o gas producidos en un proceso de colada continua. En consecuencia, el límite superior de la cantidad de N se establece para que sea 0,015%, pero en consideración de la estabilidad del material y un buen rendimiento en una serie de procesos de fabricación, es preferible que el límite superior de la cantidad de N se establece para que sea 0,010 % (Párr. 0039).
la hoja de acero tiene un valor r medio de más que 1,0.	Un valor medio de Lankford después del envejecimiento es igual o inferior a 1,0 (Reivindicación 1).

De acuerdo con la tabla anterior, las características esenciales que se muestran en la reivindicación 1 ya habían sido divulgadas previamente en D3, en el cual muestra una lamina de acero con una composición de carbono, sílice, manganeso, fósforo, azufre, aluminio, nitrógeno y nitrógeno soluto o disuelto, según lo divulgado en el documento D3. En consecuencia, la reivindicación 1 carece de novedad, según lo divulgado en el documento D3.

Asimismo, el documento D3 divulga las características de las reivindicaciones dependientes así:

- La reivindicación 3. N: 0,008-0,015% en masa (incluye el rango de N reivindicado, puesto que, incluye el intervalo de 0.014 a 0.015%) (Reivindicación 1).
- La reivindicación 4. En el ejemplo comparativo 16 y el ejemplo comparativo 9 y 10, se muestra una concentración de nitrógeno como soluto de 0.011% y 0.013% (acoge el intervalo reivindicado, puesto que, incluye 0.011% y 0.013%) (Pág. 8, Tabla 1).
- La reivindicación 5. Sin embargo, la lámina de acero puede contener elementos comúnmente existentes en un conocido chapa de acero DR para una lata soldada. Por ejemplo, la lámina de acero puede contener los siguientes componentes: Cr; igual o menor que 0,10% en masa, Cu: igual a o menor que 0,20% en masa, Ni: igual a o menor que 0,15% en masa, Mo: igual a o menor que 0,05% en masa, B: menos de 0,0020% en masa, uno o dos o más de Ti, Nb, Zr, V y así sucesivamente: menos de 0,3% en masa, Ca: igual a o menor que 0,01% en masa, y similares, dependiendo de su propósito (acoge los intervalos reivindicados, puesto que incluye, Cr, igual o menor que 0,10% en masa, Cu: igual a o menor que 0,20% en masa, Ni: igual a o menor que 0,15% en masa, Mo: igual a o menor que 0,05% en masa, Ti, Nb, Zr, V y así sucesivamente: menos de 0,3% en masa y Ca: igual a o menor que 0,01% en masa) (Párr. 0040).

La reivindicación 9 consiste en: *“Un método para fabricar hojas de acero para latas, que comprende proveer un acero que contiene, % en masa...”* (Ver Págs. 18 y 19 Rad. N° 14-028689-00005-0000).

Comparación de las características técnicas esenciales, con las del estado de la técnica:

Características Esenciales	D3	D4
Un método para fabricar hojas de acero para latas, que comprende proveer un acero que contiene, % en masa:	Un método de fabricación de una lámina de acero DR que incluye los siguientes componentes de acero (Reivindicación 2).	Un método para fabricar una lámina de acero de alta resistencia para latas, que comprende (Reivindicación 3).
C: no menos que 0,020% y no más que 0,039%,	C: 0,02 hasta 0,06% en masa (Reivindicación 2).	la plancha de acero que contiene, sobre la base de por ciento en masa, C: más de 0,02% y 0,10% o menos (Reivindicación 3).
Si: no menos que 0,003% y no más que 0,100%,	Si: igual a o menor que 0,03% en masa (Reivindicación 2).	Si: 0,10% o menos (Reivindicación 3).
Mn: no menos que 0,10% y no más que 0,60%,	Mn: 0,05 a 0,5% en masa (Reivindicación 2).	Mn: 1,5% o menos (Reivindicación 3).
P: no menos que 0,001% y no más que 0,100%,	P: igual a o menor que 0,02% en masa (Reivindicación 2).	P: 0,20% o menos (Reivindicación 3).
S: no menos que 0,001% y no más que 0,020%,	S: igual a o menor que 0,02% en masa (Reivindicación 2).	S: 0,20% o menos (Reivindicación 3).
Al: no menos que 0,005% y no más que 0,100%, y	Al: 0,02 a 0,10% en masa (Reivindicación 2).	al: 0,10% o menos (Reivindicación 3).
N: más que 0,0130% y no más que 0,0170%,	N: 0,008-0,015% en masa (Reivindicación 2).	N: 0,0120% a 0,250% (Reivindicación 3).
en donde el resto corresponde a Fe e impurezas inevitables;	Contiene hierro residual e impurezas inevitables (Reivindicación 2).	y siendo el resto Fe e impurezas incidentales (Reivindicación 3)
colar continuamente el acero en un desbaste plano;	El calentamiento de una pieza de trabajo de acero al igual o superior a 1200 ° C (Reivindicación 2). Una pieza de trabajo de acero como un material de laminado no está particularmente limitado, pero se obtiene preferiblemente utilizando un método de colada continua con el fin de minimizar la segregación macro (Párr. 0041),	En primer lugar, un acero fundido que tiene la composición descrita anteriormente se funde por un método de fusión generalmente conocido el uso de un convertidor o similar, y se forma en un material laminado (losa) por un método de colada generalmente conocido, tal como un método de colada continua (Párr. 0049).
laminar en caliente el desbaste plano;	Luego se realiza la laminación en caliente de la pieza de acero a una temperatura de acabado de igual o mayor que el punto de transformación Ar3 (Reivindicación 2).	Laminar en caliente una plancha de acero a una temperatura de extracción de plancha de 1200 ° C o más y una temperatura de laminado de acabado de (Ar3 de transformación térmica-30) ° C o más (Reivindicación 3). El material laminado es entonces el laminado en caliente en una hoja de laminado en caliente. En ese momento, la temperatura de extracción losa es 1.200 ° C o más, y la temperatura de laminado de acabado es (transformación Ar3

		temperatura-30) ° C o más (adecuadamente, al menos Ar3 temperatura de transformación) (Párr. 0049).
enrollar la hoja laminada en caliente a una temperatura de no menos que 500°C y menos que 630°C;	Formar una lámina de bobinado laminado en caliente de acero a una temperatura de devanado de igual o menos de 600 °C (Reivindicación 2).	Enrollado a una temperatura de 650 ° C o menos (Reivindicación 3). La hoja de laminado en caliente se bobina luego a 650 ° C o menos (Párr. 0049). La temperatura de bobinado es de 650 ° C o menos para reducir la fijación de nitrógeno por Al. A una temperatura de bobinado por encima de 650 ° C, la precipitación de los aumentos de AlN considerablemente, y se disolvió N disminuye. Por lo tanto, el endurecimiento por envejecimiento previsto no puede ser alcanzado, preferiblemente, la temperatura de bobinado es de 600 °C o menos para alcanzar consistentemente sustancial endurecimiento por envejecimiento (Párr. 0051).
laminar en frío primariamente la hoja laminada en caliente	Someter a un proceso de recocido a la hoja de acero que fue laminada en frío a una temperatura igual o superior que la temperatura de re cristalización e igual o inferior al punto de transformación Ac1 (Reivindicación 2). Si una tasa de laminado en frío es inferior a 80%, el valor medio Lankford puede exceder 1,0 debido al crecimiento del grano notable en un paso de recocido continuo. En consecuencia, la tasa de laminado en frío es preferiblemente algo igual o más de 80%, más preferiblemente 80% a 95% (Párr. 0044).	Laminado en frío (Reivindicación 3).
Recocer la hoja laminada en frío primariamente; y laminar en frío secundariamente la hoja recocida y laminada en frío primariamente con una reducción de no más que 20%.	Someter a la chapa de acero a un proceso de recocido con una velocidad de laminación de templado de 6% a 15% (Reivindicación 2). La laminación en frío secundaria después del recocido es un factor importante en la fabricación de la chapa de acero de la presente invención, al lado de la N. soluto una tasa de reducción de 6% a 15% se aplica a la chapa de acero recocido continuo que incluye el soluto N de igual o más de 0,006% de la presente invención (párr. 0046).	Luego recocer continuamente (Reivindicación 3). Si es necesario, la segunda laminación en frío se realiza más a fondo en un proyecto de 10% o más, pero menos del 20% (de forma adecuada, el 10% o más, pero menos del 15%) (Párr. 0049).

De acuerdo con la tabla anterior, las características esenciales que se muestra en la reivindicación 9 ya habían sido divulgadas previamente en D3 y D4, en los cuales muestran un método ara realizar una lamina de acero con una composición de carbono, sílice,

manganeso, fósforo, azufre, aluminio, nitrógeno y nitrógeno soluto o disuelto, en el cual se cola continuamente, se lamina en caliente, se enrolla, se lamina en frío, se realiza un proceso de recocido y una laminación secundaria, según lo divulgado en los documentos D3 y D4. En consecuencia, la reivindicación 9 carece de novedad, según lo divulgado en los documentos D3 y D4.

Asimismo, el documento D3 divulga las características de las reivindicaciones dependientes así:

- Las reivindicaciones 10 y 11. El método de fabricación incluye: calentar una pieza de trabajo de acero a una temperatura igual o superior de 1200 °C y luego realizar la laminación en caliente a una temperatura de acabado de igual o más que el punto de transformación (Ar3) (Párr. 0019).
- La reivindicación 12. La reivindicación 10. El método de fabricación incluye: calentar una pieza de trabajo de acero a una temperatura igual o superior de 1200 °C y luego realizar la laminación en caliente a una temperatura de acabado de igual o más que el punto de transformación (Ar3) (Párr. 0019).
- La reivindicación 13. La hoja de acero laminado en caliente obtenido como anteriormente se somete a una etapa de desincrustación mediante lavado con ácido, y luego a una etapa de laminación en frío (Párr. 0044).
- La reivindicación 14. En consecuencia, la tasa de laminado en frío es preferiblemente algo igual o más de 80%, preferiblemente 80% a 95% (Párr. 0044).
- La reivindicación 15. Un paso de recristalización después de la laminación en frío se lleva a cabo en un horno de recocido. Si la temperatura de recocido es superior a un punto de transformación Ac1, el valor medio de una placa de Lankford excede 1,0 debido al crecimiento de grano notable, en consecuencia, el límite superior de la temperatura de recocido se ajusta para que sea 700 °C, por otra parte, una estructura de laminación en frío se mantiene por debajo de la temperatura de recristalización, lo que hace imposible asegurar el estirado total, en consecuencia, el límite inferior de la temperatura de recocido se ajusta para que sea igual o más de la temperatura de recristalización (Párr. 0045).
- La reivindicación 16. La laminación en frío secundaria después del recocido es un factor importante en la fabricación de la lámina de acero en la presente invención, puesto que, la tasa de reducción es de 6% a 15% (Párr. 0046)
- La reivindicación 17. Un tratamiento de superficie para la lámina de acero no está particularmente limitado con tal de que se pueda aplicar a una lámina de acero para latas típicas. Es decir, un tratamiento de la superficie puede llevarse a cabo para la lámina de acero con un recubrimiento de estaño, un chapado de cromo, un recubrimiento de níquel, combinaciones de los mismos, o similares (Párr. 0049).

Nivel inventivo (Art18 D486)

La reivindicación 2, consiste en: *“La hoja de acero para latas de acuerdo con la reivindicación 1, en donde el contenido de C es no menos que 0,025% y no más que 0,035%”* (Ver Pág. 17 del Radicado N° 14-013089-00004-0000).

Comparación de las características técnicas esenciales, con las del estado de la técnica:

N*	Características esenciales	D3	D4
2	La hoja de acero para latas de acuerdo con la reivindicación 1, en donde el contenido de C es no menos que 0,025% y no más que	No menciona	Por lo tanto, C es de más de 0,02%. Preferiblemente, C varía de 0,03% a 0,05% (Párr. 0036).

	0,035%.	
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El documento D3 se considera el estado de la técnica más cercano a la invención definida en la reivindicación 2, porque divulga una lámina de acero de alta resistencia para las latas, que contiene, sobre la base de por ciento en masa, C: más de 0,02% y 0,10% o menos, Si: 0,10% o menos, Mn: 1,5% o menos, P: 0,20% o menos, S: 0,20% o menos, al: 0,10% o menos, N: 0,0120% al 0,0250%, se disolvió N siendo 0,0100% o más, y siendo el resto Fe e impurezas incidentales (Párr. 0019).

La diferencia entre la invención definida en la reivindicación 2 y la lámina de acero divulgada en D3, consiste en que este último no menciona que la hoja de acero contenga carbono de no menos que 0.025 % a 0.035%.

El efecto que logra que el contenido de carbono se encuentre entre 0.025 % a 0.035% es alcanzar una resistencia aún mas alta en la lamina de acero.

Por lo tanto, el problema técnico objetivo que pretende resolver esta invención se puede formular así: “¿Como modificar la lámina de acero de D3 con el fin de alcanzar una resistencia aún mas alta?”.

Sin embargo, ya era conocido en el estado de la técnica, la aplicación de carbono entre 0.025% a 0.035% en láminas de acero, puesto que, en el documento D4 se menciona que el C es eficaz en el aumento de la resistencia del acero por que fortalece la solución sólida, pero forma carburo, lo que reduce la ductilidad y por lo tanto la procesabilidad de una lámina de acero; por lo tanto, C es de más de 0,02%. Preferiblemente, C varía de 0,03% a 0,05% (Párr. 0036).

En consecuencia, la persona del oficio normalmente versada en la materia enfrentada al problema técnico de aumentar la resistencia en la lámina de acero, estaría motivada a incluir carbono entre 0.03 a 0.05 como es divulgado en D4, en la lámina de acero que se divulga en D3, llegando así al objeto de la reivindicación 2, por lo cual se considera obvia.

Por su parte, las reivindicaciones 6 a 8, que refieren a la resistencia a la tensión de la hoja de acero y al alargamiento de fractura, se considera que con los elementos y concentraciones que al corresponder dicha hoja en todos sus aspectos con los del estado de la técnica, con toda probabilidad tendría el mismo valor para esos parámetros, en caso en que se midieran. Por tanto, queda afectada su novedad.

De igual manera, la reivindicación dependiente 18 no menciona características técnicas adicionales que puedan brindarle novedad y nivel inventivo al objeto de la reivindicación 1, puesto que estas se encuentran afectadas por resultados a alcanzar, puesto que, el método que se reivindica tiene como objetivo contralar dicha característica.

7. Conclusión

Los requisitos de Patentabilidad de la presente solicitud están afectados así:

Ítem	Documento	Reivindicaciones afectadas	Requisito que afecta
D3	US 2009/250147	1 - 18	Novedad y nivel inventivo
D4	US 2011/076177	1 - 18	Novedad y nivel inventivo

8. Respuesta a los argumentos del señor solicitante.

Argumentos con respecto a la claridad del pliego reivindicatorio

- Contrario a lo mencionado por la solicitante, en cuanto a que las expresiones “no menos que”, “no mas que” y “menos que”, delimitan el alcance de la presente invención y permiten que la misma sea comparada con el arte previo, Esta oficina considera que dichas expresiones no limitan la invención, por cuanto no presentan claramente un rango superior y uno inferior [3], por tanto, dichos términos no permiten definir el alcance de la invención.

Argumentos con respecto al estudio de novedad

- La solicitante menciona que: *“ninguno los documentos D1 (JP 06-264138) y D2 (JP 2004-218061) anticipa de manera exacta la caracterización del método descrito en la objetada reivindicación 10 (nueva reivindicación 9), razón por la que en nuestro concepto dicha objeción carece de todo fundamento.”*
- De igual manera menciona que *“ninguno de los documentos D1 o D2 hace uso de una materia prima idéntica a la aquí reivindicada”, “ninguno de los documentos D1 o D2 comprende una etapa de colado continuo (ii)”, “las condiciones de laminado en caliente descritas por los documentos D1 y D2 son distintas a las reivindicadas”, “a pesar de que el documento D1 describe una etapa de enrollado, la misma se lleva a cabo a una temperatura distinta que excede el rango reivindicado”, “por su parte, el documento D2 ignora completamente dicha etapa de enrollado”, “ninguno de los documentos D1 o D2 hace referencia a la etapa de recocido (vi) que sucede a la laminación en frío”, “el documento D2 ignora por completo la necesidad de llevar a cabo una segunda etapa de laminado en frío (vii)”.*

Argumentos con respecto al estudio de nivel inventivo

- La solicitante afirma que: *“los documentos D1 y D2 presentan deficiencias importantes en comparación con el objeto aquí reivindicado y por tanto, no podrían sugerir o motivar su desarrollo sin la implicación de la habilidad inventiva propia del versado en la materia; hecho que expondremos a continuación.”*
- De igual manera menciona que *“a la luz de esta nueva reivindicación, solicitamos sea reconocido que el contenido de carbono de la hoja de acero fue ajustado dentro del rango desde 0,020% a 0,039% en peso, estableciendo de esta manera una diferencia significativa entre el arte previo y la presente invención que sustenta la patentabilidad de esta misma, como será expuesto más adelante en este mismo memorial.”, “El rango de carbono aquí reivindicado es más específico significativamente más estrecho en comparación con los concebidos por los documentos D1 y D2”, “Ninguno de los documentos D1 o D2 hace referencia a un contenido total de nitrógeno que excluya el contenido de nitrógeno de aluminio (N total - N como AlN)”, “Ninguno de los documentos D1 o D2 caracteriza el valor r medio de la hoja de acero”.*

Es de aclarar que si bien es cierto, que los documentos D1 y D2 no especifican la etapa de recocido, si mencionan la etapa de laminación secundaria obteniendo una reducción inferior del 20% (D1: Reivindicación 1; D2: Párr. 0046); por otro lado, aunque los documentos no mencionan la cantidad de nitrógeno que no se convirtió en nitrógeno de aluminio, sin muestran los rangos de las elementos en la composición del material, cabe aclarar que hay una restricción nueva en el intervalo de carbono, por lo anterior, se hace necesario evaluar los posibles efectos técnicos que se puedan tener con estas características, es así que esta Oficina aclara que se hace necesario realizar un nuevo estudio de patentabilidad que tenga en cuenta los cambios realizados y las explicaciones dadas por la solicitante.

³ Rango: m. Estad. Amplitud de la variación de un fenómeno entre un límite menor y uno mayor claramente especificados; en línea: <http://dle.rae.es/?id=V7xwLhM>

En cumplimiento del artículo 45 de la Decisión 486 de la Comisión de la Comunidad Andina, se le indica que debe dar respuesta dentro del término de sesenta (60) días contados a partir del día siguiente de la fecha de notificación de la presente comunicación. En caso de no dar respuesta al presente requerimiento, o si a pesar de la respuesta subsistieran los impedimentos para la concesión, se denegará la patente.

Si como respuesta a este requerimiento el solicitante llegara a modificar: i) el capítulo reivindicatorio, ii) la descripción de la invención a proteger, iii) o presente un nuevo capítulo reivindicatorio, no deberá pagar la tasa de modificación voluntaria pero sí la correspondiente a la tasa de examen de patentabilidad para que se estudie la materia modificada. En todo caso, el número de requerimientos por no patentabilidad estará supeditado a que el término del estudio de patentabilidad no sea superior a 18 meses, contados desde la publicación de la solicitud de patente de invención. Adicionalmente, se le recuerda al solicitante que si como respuesta a este requerimiento llegara a modificar el capítulo reivindicatorio y éste contenga más de diez (10) reivindicaciones deberá pagar la tasa por reivindicación adicional.

Se invita al solicitante se sirva indicar, si así lo considera, su renuncia al término faltante de sesenta (60) días para dar respuesta a este requerimiento y presentarla por escrito.

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 No. 10 de 2001.



JOSÉ LUIS SALAZAR LÓPEZ
Director de Nuevas Creaciones (c)

El anterior requerimiento fue notificado por fijación en lista, de fecha 2016-03-15

Elaboró: Lady Paola Cortes

Revisó: Olga Ximena Benavides Salazar

INFORME DE BÚSQUEDA DE PATENTES PARA EL No de Radicación: 14-0028689						
CRITERIOS PARA LA BÚSQUEDA (anexar pantallazo o reporte en PDF, junto con los boleanos utilizados)						
Palabras clave utilizadas		Production, steel sheet, composition, cold rolling, high-strength steel, resistance, cans, carbon				
CLASIFICACIONES INTERNACIONALES UTILIZADAS PARA LA BÚSQUEDA		C21D 9/46, C22C 38/00, C22C 38/06, C22C38/50				
BASES DE DATOS CONSULTADAS.						
ESPACENET		USPTO		JPO		Patent scope
Patbase		Kipo				
INFORMES DE EXÁMENES REALIZADOS EN OTRAS OFICINAS (documentos patentes, literatura no patente etc...)						
Oficina	Fecha del examen o de reporte de búsqueda de documentos	Anterioridades encontradas para el examen o reportados en el examen de búsqueda(relacionarlos todos)	Reiv. afectadas	RELEVANCIA (requisito que afecta)	FUERON TENIDOS EN CUENTA PARA EL EXAMEN EN LA OFICINA COLOMBIANA	
					SI	NO
EPO	06-08-2014	JP2004218061		Novedad	X	
		JPH06116647		Nivel inventivo		X
		JPH06264138		Novedad	X	
		JP2009084687		Nivel inventivo		X
DOCUMENTOS ADICIONALES ENCONTRADOS POR EL EXAMINADOR DE ACUERDO A LOS CRITERIOS DE BÚSQUEDA.						
High-strength steel sheet for cans and method for manufacturing the same PCT/JP2009/057153						
Steel sheet for cans with excellent surface properties after drawing and ironing and method for producing the same PCT/JP2010/055978						
Ultra-thin steel sheet and process for production thereof WO 2010134616						
High-strength steel plate for a can and method for manufacturing said high-strength steel plate US 2011/076177						
Dr steel sheet and process for manufacturing the same US 2009/250147						
Extra thin steel sheet for container having remarkably excellent can characteristic, and its manufacturing method JP 2004323905						
Steel sheet for can small in defect and excellent in workability and its producing method JP 2001303183						
Observaciones						
Fecha del reporte de búsqueda:		17/02/2016				

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SEARCH TERMS

production x + Synonym

steel x + Synonym

sheet x + Synonym

+ Search term

SEARCH FIELDS

Before priority date 2011-07-12 x

+ Assignee

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C22C38/18[?]

Ferrous alloys, e.g. steel alloys containing chromium

Hot-dip galvanized steel sheet and production thereof

Grant US6312536B1 • Yoshinobu Omiya • Kabushiki Kaisha Kobe Seiko Sho
Priority 1999-05-28 • Filed 2000-05-02 Granted 2001-11-06

A process for producing said hot-dip galvanized steel sheet without requiring additional steps of surface grinding and pre-plating. The hot-dip galvanized steel sheet is produced by forming a hot-dip galvanizing layer on a base cold-rolled steel sheet composed of C (0.02-0.20 mass %), Mn (1.50-2.40 ...

Hot-dip galvanized steel sheet and method for producing the same

Grant US6440584B1 • Yasunobu Nagataki • Nkk Corporation
Priority 2000-01-24 • Filed 2001-09-17 Granted 2002-08-27

A hot-dip galvanized steel sheet is produced by rough rolling a steel, finish rolling the rough rolled steel at a temperature of Ar3 point or more, coiling the finish rolled steel at a temperature of 700° C. or less, and hot-dip galvanizing the coiled steel at a pre-plating heating temperature of Ac1 to Ac3. A ...

→ Search within classification C22C38/18 (314,319 results)

C21D8/12[?]

Modifying the physical properties by deformation combined with, or followed by, heat treatment during manufacturing of articles with special electromagnetic properties

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SEARCH TERMS

composition x + Synonym

steel x + Synonym

sheet x + Synonym

+ Search term

SEARCH FIELDS

Before priority date 2011-07-07 x

+ Assignee

MORE v

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About 613,270 results ordered by relevance, grouped by classification (view ungrouped)

Y10T428/12493[?]

Composite; i.e., plural, adjacent, spatially distinct metal components [e.g., layers, joint, etc.]

Coated hot- and cold-rolled steel sheet comprising a very high resistance after ...

Grant US6296805B1 • Jean-Pierre Laurent • Sollac
Priority 1998-07-09 • Filed 1999-07-09 Granted 2001-10-02

Hot-rolled steel sheet which then can be cold-rolled, coated, the steel in the sheet having the following composition by weight: 0.15%<carbon<0.5% ... The coated steel sheet according to claim 1, wherein the composition by weight of the sheet further comprises the following: 0.20%<carbon<0.5%.

Multicoated steel sheet susceptible to cationic electrodeposition coating

Grant US5102746A • Yoshio Shindou • Nippon Steel Corporation
Priority 1986-07-31 • Filed 1987-07-28 Granted 1992-04-07

An organic multicoated steel sheet according to claim 1 wherein the solvent coating composition additionally contains a hardener at a ratio of ... On the other hand, in order to meet the demand, various organic multicoated steel sheets and coating compositions have been developed in the steel industry ...

→ Search within classification Y10T428/12493 (183,981 results)

Y10T428[?]

Former US Class 428 Series

Weldable coated steel sheet

Grant US4079163A • Tadashi Tanaka • Nippon Steel Corporation

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Cerca de 1,600 resultados (0.30 segundos)

Cold-rolled steel sheet, method of producing the same, ...

www.google.com.co/patents/US8388770 - Traducir esta página
Otorgada - Presentada el 13 Mar 2007 - Emitido el 5 Mar 2013 - Nobuko Mineji - Jfe Steel Corporation
Therefore, it is desired that a **cold-rolled steel sheet** be produced at a rolling **reduction** of at least **90%** or less, and more preferably, 85% or less.
Descripción general - Información relacionada   - Debatir

Cold-rolled steel sheet having excellent bendability, ...

www.google.com.co/.../EP2405026A1?cl... - Traducir esta página
Solicitud - Presentada el 19 Feb. 2010 - Publicada el 11 Ene. 2012 - Koichiro Fujita - JFE Steel Corporation
Provided are an inexpensive **cold-rolled steel sheet** which has excellent bending workability and which can be worked by severe **90-degree bending** at a ... and **cold-rolling** the hot-rolled steel **sheet** at a rolling **reduction** of ...
Descripción general - Información relacionada   - Debatir

Cold-rolled steel sheet, process for producing the same, ...

www.google.com.co/.../EP1995340A1?cl... - Traducir esta página
Solicitud - Presentada el 13 Mar 2007 - Publicada el 26 Nov. 2008 - Nobuko

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https://www.google.com/search?tbm=pts&q=steel+cold+rolling+reduction+91.5%25

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Cerca de 164 resultados (0.35 segundos)

Steel sheet for can and process for producing same

www.google.com.co/.../WO2013008457... - Traducir esta página
Solicitud - Presentada el 11 Jul. 2012 - Publicada el 17 Ene. 2013 - Takumi Tanaka - Jfe Steel Corporation
The high-strength **steel sheet** is obtained by conducting hot rolling, ... below 630°C, **cold-rolling** the sheet at a rolling **reduction** of **91.5%** or more ...
Descripción general - Información relacionada   - Debatir

Steel sheet for can and process for producing same

www.google.com.co/.../CN103649353A?cl... - Traducir esta página
Solicitud - Presentada el 11 Jul. 2012 - Publicada el 19 Mar 2014 - 田中匠 - 杰富意钢铁株式会社
The **steel sheet** contains, in terms of mass%, 0.001-0.040%, ... below 630 DEG C, **cold-rolling** the sheet at a rolling **reduction** of **91.5%** or more, ...
Descripción general - Información relacionada   - Debatir

Process for the control of inhibitors distribution in the ...

www.google.com.co/patents/US7192492 - Traducir esta página
Otorgada - Presentada el 8 Ago. 2001 - Emitido el 20 Mar 2007 - Stefano Fortunati - Thyssenkrupp Acciai Speciali Terni S.P.A.
In the production of electrical **steel** strins, a special islah-reheating treatment

← → ↻ worldwide.espacenet.com/publicationDetails/biblio?DB=EPODOC&II=0&ND=3&adjacent=true&locale=en_EP&FT=D&date=20130117&CC=WO&NR=2013008457   

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WO2013008457 (A1)

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INPADOC legal status

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STEEL SHEET FOR CAN AND PROCESS FOR PRODUCING SAME

Page bookmark [WO2013008457 \(A1\) - STEEL SHEET FOR CAN AND PROCESS FOR PRODUCING SAME](#)

Inventor(s): TANAKA TAKUMI [JP]; TADA MASAKI [JP]; KOJIMA KATSUMI [JP]; TOBIYAMA YOICHI [JP] ±

Applicant(s): JFE STEEL CORP [JP]; TANAKA TAKUMI [JP]; TADA MASAKI [JP]; KOJIMA KATSUMI [JP]; TOBIYAMA YOICHI [JP] ±

Classification: - international: C21D9/46; C22C38/00; C22C38/06; C22C38/50
- cooperative: C21D8/0426; C21D8/0442; C21D8/0468; C21D8/0473; C21D9/08; C22C38/001; C22C38/02; C22C38/04; C22C38/06

Application number: WO2012JP04467 20120711

Priority number(s): JP20110153718 20110712

Also published as: [TW201311912 \(A\)](#), [KR20140030334 \(A\)](#), [JP2013019027 \(A\)](#) → [C06880059 \(A2\)](#) → [CN103649353 \(A\)](#)

Abstract of WO2013008457 (A1)

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Provided are a high-strength steel sheet for cans which has excellent flangeability and a process for producing the steel sheet. The steel sheet contains, in terms of mass%, 0.001-0.040%, excluding 0.040%, C, 0.003-0.100% Si, 0.10-0.60% Mn, 0.001-0.100% P, 0.001-0.020% S, 0.005-0.100% Al, and

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WO2013008457 - STEEL SHEET FOR CAN AND PROCESS FOR PRODUCING SAME [Right-click to bookmark this link]

Status The application is deemed to be withdrawn
Database last updated on 19.08.2015

Most recent event  04.07.2014 Application deemed to be withdrawn published on 06.08.2014 → [2014/32]

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2-3 Uchisaiwai-cho 2-chome Chiyoda-ku
Tokyo 100-0011 / JP

03 / KOJIMA, Katsumi

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1. (WO2013008457) STEEL SHEET FOR CAN AND PROCESS FOR PRODUCING SAME

PCT Biblio. Data Full Text National Phase Notices Drawings Documents

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Pub. No.: WO/2013/008457 International Application No.: PCT/JP2012/004457
 Publication Date: 17.01.2013 International Filing Date: 11.07.2012
 IPC: C22C 38/00 (2006.01), C21D 9/46 (2006.01), C22C 38/06 (2006.01), C22C 38/50 (2006.01)

Applicants: JFE STEEL CORPORATION [JP/JP]; 2-3, Uchisaiwai-cho 2-chome, Chiyoda-ku, Tokyo 1000011 (JP) (For All Designated States Except US);
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 TADA, Masaki [JP/JP]; (JP) (For US Only).
 KOJIMA, Katsumi [JP/JP]; (JP) (For US Only).
 TOBIYAMA, Yoichi [JP/JP]; (JP) (For US Only)

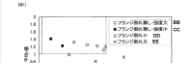
Inventors: TANAKA, Takumi (JP).
 TADA, Masaki (JP).
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 TOBIYAMA, Yoichi (JP)

Agent: KUMASAKA, Akira; c/o Intellectual Property Division, JFE TECHNO-RESEARCH CORPORATION, 7th Floor, Yanagiya Building, 1-10, Nihonbashi 2-chome, Chuo-ku, Tokyo 1030027 (JP)

Priority Data: 2011-153718 12.07.2011 JP

Title
 (EN) STEEL SHEET FOR CAN AND PROCESS FOR PRODUCING SAME
 (FR) TOLE D'ACIER POUR BOÎTE ET SON PROCÉDE DE PRODUCTION
 (JA) 缶用鋼板およびその製造方法

Abstract: (EN) Provided are a high-strength steel sheet for cans which has excellent flangeability and a process for producing the steel sheet. The steel sheet contains, in terms of mass%, 0.001-0.040% C, excluding 0.040%, C, 0.003-0.100% Si, 0.10-0.60% Mn, 0.001-0.100% P, 0.001-0.020% S, 0.005-0.100% Al, and 0.0130-0.0170%,



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HIGH-STRENGTH STEEL SHEET FOR CANS AND METHOD FOR MANUFACTURING THE SAME

Page 1/6 Abstract Bibliography Maximise Download



US 2011/0076177 A1

(19) **United States**
 (12) **Patent Application Publication**
 Aratani et al.

(10) Pub. No.: US 2011/0076177 A1
 (45) Pub. Date: Mar. 31, 2011

(54) **HIGH-STRENGTH STEEL SHEET FOR CANS AND METHOD FOR MANUFACTURING THE SAME**

(75) **Inventors:** Makoto Aratani, Chiba (JP);
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 Katsumi Kojima, Fukuyama (JP);
 Kaku Sato, Chiba (JP); Shigeko Sugita, Chiba (JP); Masaki Kojima, Chiba (JP)

(73) **Assignee:** JFE STEEL CORPORATION, Chiyodaka (JP)

(21) Appl. No.: 12/935,564
 (22) PCT Filed: Apr. 1, 2009

Publication Classification
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 C22C 38/06 (2006.01)
 C22C 38/07 (2006.01)
 C22C 38/09 (2006.01)
 C21D 8/02 (2006.01)
 (52) U.S. Cl. 420/97, 72/200, 420/103, 420/120, 420/128, 148/402

(57) **ABSTRACT**
 A steel sheet for cans that has a yield stress of at least 500 Mpa after coating and baking and a method for manufacturing the steel sheet for cans are provided. The steel sheet for cans contains, on the basis of mass percent, C: more than 0.02% but 0.10% or less, Si: 0.10% or less, Mn: 1.5% or less, P: 0.020% or less, S: 0.020% or less, Al: 0.10% or less, N: 0.0120% or 0.0250%, dissolved N: being 0.0100% or more, and a remainder of Fe and incidental impurities. A high-strength

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United States Patent Application

Kind Code

Nishida; Hiroshi ; et al.

20090250147

A1

October 8, 2009

Dr Steel Sheet and Manufacturing Method Thereof

Abstract

This DR steel sheet includes the following steel components: C: 0.02 to 0.06 mass %, Si: equal to or less than 0.03 mass %, Mn: 0.05 to 0.5 mass %, P: equal to or less than 0.02 mass %, S: equal to or less than 0.02 mass %, Al: 0.02 to 0.10 mass %, and N: 0.008 to 0.015 mass %. The amount of solute N (Ntotal-NasAlN) in the steel sheet containing a residual iron and inevitable impurities, is equal to or more than 0.006%, and the total stretchability in a rolling direction after aging is equal to or more than 10%, total stretchability in a sheet width direction after aging is equal to or more than 5%, and an average Lankford value after aging is equal to or less than 1.0.

Inventors:

Correspondence

Address:

Family ID:

Appl. No.:

Filed:

PCT Filed:

PCT NO:

371 Date:

Nishida; Hiroshi (Tokyo, JP) ; Hirano; Shigeru (Tokyo, JP) ; Aitoh; Takahiro (Tokyo, JP) ; Tanaka; Seiichi (Tokyo, JP)

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August 9, 2007

PCT/JP2007/065590

November 18, 2008

Current U.S. Class:

Current CPC Class:

Class at Publication:

148/645 ; 148/328

C21D 9/46 20130101; C22C 38/06 20130101; C22C 38/04 20130101; C22C 38/001 20130101

148/645 ; 148/328

Lady Cortes

Search history

Search 1: TAC=(steel sheet) (Results 65412)
Search 2: TAC=(resistance) (Results 100000)
Search 3: TAC=(cans) (Results 49962)
Search 4: TAC=(carbon) (Results 100000)
Search 5: TAC=(1 and 2 and 3 and 4) (Results 35)
Search 6: TAC=(High-strength) (Results 45536)
Search 7: TAC=(1 and 2 and 4 and 6) (Results 158)
Search 8: TAC=(1 and 3 and 4 and 6) (Results 3)
Search 9: TAC=(steel) (Results 100000)
Search 10: TAC=(3 and 4 and 6 and 9) (Results 6)
Search 11: TAC=(3 and 6 and 9) (Results 26)

1) Family number: 85008 (GB1207259A)

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Title: A DEVICE FOR FORMING CONSTANT-PITCH TRANSVERSE CORRUGATIONS ON A CYLINDRICAL WORKPIECE

Source: GB207259A 1,207,259. Swaging; making dies; making tubes. . 19 Dec., 1968 [28 Dec., 1967], No. 60283/68. Headings B3A and B3H. A device for forming transverse corrugations on a cylindrical workpiece 11 comprises swaging jaws 10 reciprocated rapidly, a push head 12 advanced continuously and gripping jaws 30 to allow advance only when the swaging jaws are open. The workpiece is preferably tubular and rotatably mounted by a coupling to a workholder tube 16. The tube is axially slidable in a sleeve 18 between adjustable abutments separated by a distance j equal to slightly less than the pitch of the corrugations. The tube 16 is spring-biased towards the swaging jaws. The sleeve 18 is held in a friction block or rigidly mounted on a yoke 14 of the push head 12. The gripping jaws 30 are spring-biased on to the workpiece and opened by electromagnets 34 when a pair of normally open contacts are both closed. One contact (40), Fig. 1a (not shown), is closed when the swaging jaws are open and the other contact (42) closed when the sleeve 18 is advanced a distance j relative to the tube 16. In operation the push-head is advanced slowly so that the jaws can open and close many times before the workpiece is advanced one step. The swaging jaws 10 are made from jaw blanks with smooth faces. The blanks are preferably high-grade steel which is tempered to give it a low elastic limit. The jaws are placed in the machine and a high-strength steel former with transverse grooves is placed between the jaws which are rapidly reciprocated against the former. The jaws are thus formed with grooves and are then hardened. The transversely grooved tube is preferably made from a zirconium-base alloy for containing stacks of discs of ceramic nuclear fuel.

International (IPC 8-9):

B21K1/00 (Core/Invention)

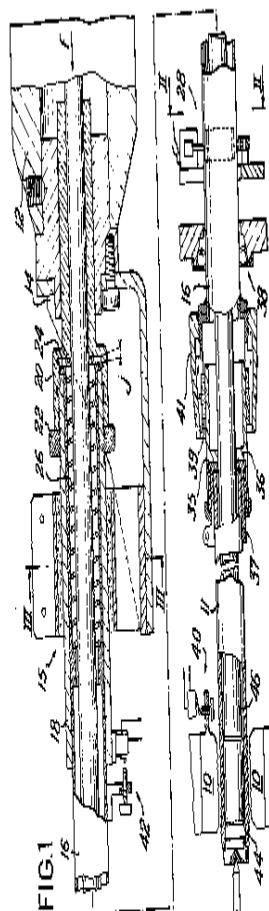
International (IPC 1-7): B21C37/20

International (IPC 1-7): B21C37/20
B21D17/00 B21D31/06 B21J13/08 B21J5/12
B21J7/00 B21K1/54 B21K1/56 B25D

CPC: B21K1/56

European: 7B15 B21K1/56

1207259 COMPLETE SPECIFICATION
3 SHEETS This drawing is a reproduction of
the Original on a reduced scale
Sheet 1



Family:

Publication number	Publication date	Application number	Application date
BE724610 A	19690502		19681128
CH499351 A	19701130	CH19680017826	19681129
DE1813760 A1	19690821	DE19681813760	19681210
ES361951 A1	19701116	ES19680361951	19681228
FR1559017 A	19690307	FR19670133980	19671228
GB1207259 A	19700930	GB19680060283	19681219
LU57634 A	19690421		19681223
NL6817833 A	19690701	NL19680017833	19681212

Priority:

FR19670133980 19671228

Probable Assignee: COMMISSARIAT ENERGIE ATOMIQUE

Assignee(s): (std): ALBERT S CHOU ; COMMISSARIAT ENERGIE ATOMIQUE

Assignee(s): COMMISSARIAT A L ENERGIE ATOMIQUE

Inventor(s): (std): ORTEL YVAN ; YVAN ORTEL

Title: IMPACTOR**Abstract:**

Source: GB1252461A 1,252,461. Crushing **cans**; making can c. crushers. T. S. ROSS. 29 Jan., 1969 [1 Feb., 1968; 14 Nov., 1968], No. 4993/69. Headings B3A and B3V. [Also in Division B2] An impact tool for crushing **cans** 14 and breaking bottles comprises a handle 4 having an enlarged head 6 with points 46 for holding an article to be crushed by kinetic energy of a driver 8 movable freely lengthwise of the handle. As shown, the driver 8 has a hand-grip 48 by which it is moved through the hollow handle 4 which is made of aluminium or a plastics, preferably reinforced. The head 6 is made of cast **steel** and is fixed to the handle 4 by screwthreads or a bayonet fastening 26, 30, a neoprene gasket 44 separating teeth 36 on the head from those 44 on the handle. Instead of casting the points 46 with the head 6 they may be attached by screw-threads, press-fitting or brazing. A **steel** driver 8 is used having a plastics sleeve 48 which may be fixed by an adhesive. Preferably a sound-absorbing cap 52 is fitted to the driver 8, or a plastics plug may be placed in the head, or the handle may have a closed end. A plastics shroud 10 surrounding the handle, is located over a dustbin 12. In another construction, Figs. 6 and 9 (not shown), points (94, 95) of different sizes are provided on the head (76) which may be case hardened. The shroud (78) may be adhesively secured to the handle (72), and the driver may be formed in two parts (74, 110) preferably with a plastics tip (116). A plastics layer (118) may be provided against which the driver strikes. If the tip (116) and sheet (118) are not provided, the driver should have a tapered end.

**Classifications:****International (IPC 8-9):** B02C19/00 B25D9/00 B30B1/00 (Advanced/Invention);

B02C19/00 B25D9/00 B30B1/00 (Core/Invention)

International (IPC 1-7): B02C18/40 B02C19/00 B02C19/12 B25D9/00 B30B1/00 B30B9/32 B65F1/14**CPC:** Y10S100/902 B65F1/1405 B02C19/0081**European:** B02C19/00W8 B02C19/14 B65F1/14B**US:** 100/240 100/295 100/902 173/114 173/126 173/131 173/210 173/90 175/293 175/414 241/99 299/100**Family:**

Publication number	Publication date	Application number	Application date
DE1903775 A1	19691002	DE19691903775	19690125
FR2001149 A1	19690926	FR19690002176	19690131
GB1252461 A	19711103		19690129
NL6901651 A	19690805	NL19690001651	19690201
US3565351 A	19710223	US19680784505	19681114

Priority:

US19680702437 19680201 US19680784505 19681114

Probable Assignee: ROSS JUN THORVALD S**Assignee(s):** (std): ROSS JUN THORVALD S ; ROSS THORVALD ; THORVALD S ROSS JR**Inventor(s):** (std): ROSS THORVALD S JR ; S ROSS JUN THORVALD**Inventor(s):** THORVALD S ROSS JR ; S ROSS JUN

Title: METHOD OF MAGNETIC PULSE WELDING METALS AND A DEVICE FOR CARRYING OUT THE METHOD

Abstract:

Source: GB1387721A 1387721 Welding by pressure A M ANDRIANOV V F DEMICHEV and G A ELISEEV 18 Feb

1972 7554/72 Heading B3R In welding together surfaces of metal (e.g. zirconium or stainless **steel**) by a magnetic field pulse acting to move one surface into highspeed collision with another surface, said magnetic field pulse is generated by an inductor, the surfaces are arranged with a parallel gap therebetween, and, to provide traverse of the point of collision between said surfaces along said surfaces, the field amplitude is arranged to vary gradually along the surfaces. The invention may be applied to lap welding of cylindrical tubes (Fig. 2, not shown) or, as shown, the sealing together of the wall of a tube end 12 such as a protective envelope of a fuel element (e.g. of zirconium alloy). As shown, a heavy single-turn coil inductor is connected to a current generator 10, having a capacitor bank Co of high operating frequency, and is provided with a lining 11 of high melting point, high impact resistance, metal or alloy, such as tantalum, having a conical bore to provide for the field amplitude variation. An insulating sleeve 13 is placed between the lining 11 and the tube end 12. Inert gas 14 is fed into the welding zone to protect the tube end against oxidation.



Classifications:

International (IPC 8-9): B23K20/06 (Advanced/Invention);

B23K20/06 (Core/Invention)

International (IPC 1-7): B23K21/00

CPC: B23K20/06

European: B23K20/06

Family:

Publication number	Publication date	Application number	Application date
GB1387721 A	19750319	GB19720007554	19720218

Priority:

GB19720007554 19720218

Probable Assignee: ELISEEV G A

Assignee(s): (std): ANDRIANOV A M DEMICHEV V F ; ELISEEV G A

Title: BRACING METHOD FOR EXTENSION PIER

Abstract:

Source: JP60184113A PURPOSE: To simplify a work, by a method wherein a chain, having a mounting metal

with a turn-buckle, is installed in a bracing manner to the upper and the lower frame on the **steel** pillars of the titled pier, and the length of a brace is regulated and tightening is effected by the use of the turn-buckle.

CONSTITUTION: An uppermost plate is disposed to **steel** skeletons 1, a hook is engaged with a bored hole in the plate 2 to mount a **high-strength** chain 3 to a pillar of the **steel** skeleton 1, and the suspending chain 3 is extended to place bail **cans** 9 on a pit excavation bottom. Thereafter, after pit excavation is carried out to a given depth, the chain 3 is moved from a position, shown by a dotted line, to a position shown by a solid line, and through control of a turn-buckle 5, the length of a brace is regulated and tightening is performed to mount the plate 2 to the lower end thereof. Further, the same works are repeated in order.



Classifications:

International (IPC 8-9): E02B3/06 E02D17/04 (Advanced/Invention);

E02B3/06 E02D17/02 (Core/Invention)

International (IPC 1-7): E02B3/06 E02B3/20 E02D17/04 F16G11/12

CPC: E02B3/06

European: E02B3/06

Family:

Publication number	Publication date	Application number	Application date
JP1041766 B4	19890907	JP19840039270	19840301
JP1557803 C3	19900516	JP19840039270	19840301
JP60184113 A2	19850919	JP19840039270	19840301

Priority:

JP19840039270 19840301

Probable Assignee: ASAHI KIZAI KK

Assignee(s): (std): ASAHI KIZAI CO LTD ; TAKENAKA KOMUTEN CO

Assignee(s): TAKENAKA KOMUTEN KK ; ASAHI KIZAI KK

Inventor(s): (std): KAMAZAKI NOBUYOSHI ; KIKUCHI MASAMITSU ; NISHIMURA TAKEO ; OGURO TAKU ; SAGAMI TOMOYUKI ; TSUTSUI ISAO ; YANAGAWA YUTAKA

Abstract:

Source: DE8410341U1 (Claim 1) 1. Nebelwurfkoerper, insbesondere fuer den Abschuss aus Wurf- bechern mit



mittig angeordneter Treibladung, bestehend aus einer Dose mit in ihr befindlichem Nebelsatz, sowie Anfeuerung une. einem mit der Dose verbundenen Kontakt- kopf mit Brueckenzuender, Verzoegerungssatz und einer den Kontaktkopf umgebenden Huelle aus vorzugsweise Polyamid mit Kontaktringen, dadurch gekennzeichnet, dass er Kontaktkopf einen geschlossenen Raum oder Einsatz (14) zur Aufnahme einer ruckstandsfrei verbrennbaren Ladung aus vorzugsweise Nitrocellulose oder Nitroglycerin-Pulver bzw. Bloecke aus hochfestem Material, wie Stahl aufweist, der mit dem Verzoegerungssatz (10) ueber eine Bohrung (29) und eine Verbindungsoeffnung (17) mit dem Brueckenzuender (13) in Ver- bindung steht und dem Verzoegerungssatz (10) gegenueberliegende konzern- trisch aussermittig angeordnete Duesen (16) aufweist.

Machine translation: (Claim 1) 1 Nebelwurfkoerper, especially for the launch of throwing cups with center-mounted cartridge, consisting of a box with une located in their smoke composition and grain enhancement. one associated with the socket contact head with Brueckenzuender, Verzoegerungssatz and the contact head marked surrounding shell of preferably polyamide with contact rings, the fact that he contact head a closed space or insert (14) for receiving a ruckstandsfrei combustible cargo, preferably made of nitrocellulose or nitroglycerin powder or blocks of **high-strength** material such as **steel** has, of the Verzoegerungssatz (10) over a hole (29) and a Verbindungsoeffnung (17) with the Brueckenzuender (13) in combination stands and group the Verzoegerungssatz (10) opposite - symmetrically arranged eccentrically Nozzles (16).

Classifications:

International (IPC 8-9): C06D3/00 F42B5/155 (Advanced/Invention);

C06D3/00 F42B5/00 (Core/Invention)

International (IPC 1-7): F42B13/44

CPC: F42B5/155 C06D3/00

European: C06D3/00 F42B5/155

Family:

Publication number	Publication date	Application number	Application date
DE8410341 U1	19851010	DE19840010341U	19840403

Priority:

DE19840010341U 19840403

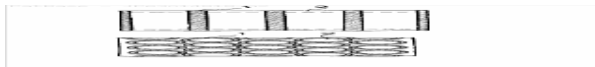
Probable Assignee: PYROTECHNISCHE FABRIK F FEISTEL GMBH AND CO KG 6719 GOELLHEIM DE

Assignee(s): PYROTECHNISCHE FABRIK F FEISTEL GMBH AND CO KG 6 ; PYROTECHNISCHE FABRIK F FEISTEL GMBH AND CO KG 6719 GOELLHEIM DE

Title: STEEL SHEET FOR CAN HAVING EXCELLENT FLANGING CHARACTERISTIC

Abstract:

Source: JP63014818A PURPOSE: To obtain a steel sheet for cans having high strength and excellent flanging characteristic by subjecting a cold rolled steel sheet to a softening heat treatment in the parts corresponding to the flanges of can bodies. CONSTITUTION: A steel slab is hot rolled at about 700W900 Degrees Centigrade and is coiled at about 500W750 Degrees Centigrade to form a coil which is then subjected to pickling and cold rolling. The cold rolled steel sheet 2 obtd. in such a manner is subjected to the softening heat treatment in stripe or annular shape at the parts 1 corresponding to the flanges of the can bodies. The above-mentioned softening heat treatment is adequately executed by heating the steel sheet to a restoring annealing temp. region or recrystallization annealing temp. region by electric induction, laser, etc. The excellent flanging characteristic is thereby provided to the thin steel sheet which is improved in the strength by secondary cold rolling, etc. The high-strength thin steel sheet which obviates the cracking of the flanges is thus obtd. The above-mentioned steel sheet is plated with tin, chromium, etc., in order to assure the corrosion resistance as can bodies. The steel sheet for the cans is thus obtd.



Classifications:

International (IPC 8-9): B21D51/26 C21D9/46 (Advanced/Invention);

B21D51/26 C21D9/46 (Core/Invention)

International (IPC 1-7): B21D51/26 C21D9/46

Family:

Publication number	Publication date	Application number	Application date
JP63014818 A2	19880122	JP19860157202	19860705
JP63014818 K1	19880122	JP19860157202	19860705

Priority:

JP19860157202 19860705

Probable Assignee: NIPPON STEEL CORP

Assignee(s): (std): NIPPON STEEL CORP

Inventor(s): (std): OKA MASARU ; YAMAZAKI KAZUMASA

Title: **HIGH-STRENGTH** ALUMINUM-ALLOY SHEET FOR PACKAGE EXCELLENT IN CORROSION RESISTANCE AND ITS PRODUCTION

Abstract:

Source: JP63079936A PURPOSE: To obtain an Al alloy for package excellent in strength and self- corrosion resistance, by subjecting an Al-alloy ingot with a specific composition to homogenizing treatment, to hot rolling, and then to cold rolling twice, while exerting heat treatment between the above cold rolling stages, so as to specify natural electrode potential in a salt solution. CONSTITUTION: The Al-alloy ingot consisting of 1.0W3.5 percent Mg, 0.05W0.20 percent Si, 0.05W0.50 percent Fe, 0.10W1.0 percent Cu, 0.05W0.30 percent Cr, and the balance essentially Al is homogenized and then is hot-rolled at 400W580 Degrees Centigrade Subsequently, the hot- rolled plate is cold-rolled into a thickness =1.2 times the final thickness, heated at 300W580 Degrees Centigrade for =3hr to undergo process annealing, and then is subjected to final cold rolling. By the above treatments, an alloy sheet in which natural electrode potential in a 0.1 percent solution of salt (25 Degrees C) by using AgCl as a reference electrode is regulated to -700W-630mV is formed. This Al-alloy sheet can inhibit galvanic corrosion when used as lid material for soft-**steel** food **cans**, etc.

Classifications:

International (IPC 8-9): C22C21/06 C22F1/04 C22F1/047 (Advanced/Invention);

C22C21/06 C22F1/04 C22F1/047 (Core/Invention)

International (IPC 1-7): C22C21/06 C22F1/047

Family:

Publication number	Publication date	Application number	Application date
JP63079936 A2	19880409	JP19860221967	19860922

Priority:

JP19860221967 19860922

Probable Assignee: SUMITOMO LIGHT METAL IND

Assignee(s): (std): SUMITOMO LIGHT METAL IND

Assignee(s): SUMITOMO LIGHT METAL IND LTD

Inventor(s): (std): FUKUDA YASUHIRO ; ITO HIDEO ; TANABE ZENICHI ; TSUCHIDA MAKOTO

8) Family number: 7505829 (JP3257123A)

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Title: PRODUCTION OF **STEEL** SHEET FOR EXTREMELY THIN WELDED CAN HAVING EXCELLENT BLANK LAYOUT PROPERTY

Abstract:

Source: JP3257123A PURPOSE: To obtain the **high-strength** thin **steel** sheet having an excellent blank layout property by specifying a cooling temp., reheating temp., hot rolling finish temp., and secondary cold rolling draft at the time of producing the **steel** sheet for extremely thin welded **cans** from a slab consisting of a specific compsn. CONSTITUTION: The slab contg., by weight percent, over 0.0060 percent and 0.0300 or under C, less than or equal to 0.06 percent Si, 0.05 to 0.60 percent Mn, less than or equal to 0.06 percent P, less than or equal to 0.06 percent S, 0.005 to 0.1005 Sol Al, and 0.0010 to 0.0100 percent N, and consisting of the balance iron and unavoidable impurities is cooled to an Ar₃ transformation point or below. The slab is then reheated to greater than or equal to 1050 degrees centigrade, more desirably greater than or equal to 1150 degrees centigrade and is finished by hot rolling at the temp. above the Ar₃ transformation point; thereafter, the **steel** sheet is coiled at about less than or equal to 680 degrees centigrade The **steel** sheet is further subjected to pickling, cold rolling and recrystallization annealing by conventional methods, then to secondary cold rolling at greater than or equal to 10 percent and <25 percent draft to form the **steel** sheet having less than or equal to 0.15mm thickness, greater than or equal to 62 HR30-T hardness, and greater than or equal to 44kgf/mm² tensile strength in the rolling direction. The **steel** sheet having the excellent blank layout property without being deteriorated in the ductility in the direction orthogonal with the rolling direction is obt'd. in this way.

Classifications:

International (IPC 8-9): C21D8/02 C21D9/46 C22C38/00 C22C38/06 C22C38/14 (Advanced/Invention);

C21D8/02 C21D9/46 C22C38/00 C22C38/06 C22C38/14 (Core/Invention)

International (IPC 1-7): C21D8/02 C21D9/46 C22C38/00 C22C38/06 C22C38/14

Family:

Publication number	Publication date	Application number	Application date
JP3257123 A2	19911115	JP19900052642	19900306
JP8006143 B4	19960124	JP19900052642	19900306

Priority:

JP19900052642 19900306

Probable Assignee: NIPPON STEEL CORP

Assignee(s): (std): NIPPON STEEL CORP

Inventor(s): (std): KONO TAKESHI ; MARUOKA KUNIAKI ; NOSAKA SHOJI ; TANAKA SEIICHI

Title: Method of producing **high-strength steel** sheet used for can

Abstract:

Source: US6063214A A method of producing a **steel** sheet useful for making **cans**. The method steps include hot-rolling a slab consisting of about 0.0005 to 0.01 wt percent C, about 0.001 to 0.04 wt percent N (the total of C and N is at least about 0.008 wt percent), about 0.05 to 2.0 wt percent Mn, about 0.005 wt percent or less Al, about 0.01 wt percent or less O at a finish rolling temperature within a temperature range of about the Ar₃ point to about 950 DEG C., coiling the rolled material at a temperature range of about 400 to 600 DEG C., cold rolling the material, continuously annealing the material at a temperature higher than the recrystallization temperature, and then temper-rolling the material. The **steel** sheet exhibits good workability during can making and which can be formed into a can having **high strength**.



Classifications:

International (IPC 8-9): C21D8/02 C21D8/04 C21D9/48 C22C38/00

C22C38/06 (Advanced/Invention);

C22C38/00 C22C38/06 (Advanced/Non-invention);

C21D8/04 C21D9/48 C22C38/00 C22C38/06 (Core/Invention);

C22C38/00 C22C38/06 (Core/Non-invention)

International (IPC 1-7): C21D8/02 C21D8/04 C21D9/48 C22C38/00 C22C38/06

CPC: C21D8/0226 C21D8/0236 C21D8/0268 C21D8/0436 C21D8/0442 C21D8/0473 C21D9/48 C22C38/004

European: C21D8/02D2 C21D8/02D6 C21D8/04D6 C21D8/04D8 C21D8/04F8 C21D9/48

C22C38/00D M21D8/02D2 M21D8/02F7

US: 148/602 148/603

Family:

Publication number	Publication date	Application number	Application date
DE69311393 D1	19970717	DE19936011393	19930218
DE69311393 T2	19970925	DE19936011393T	19930218
EP0556834 A2	19930825	EP19930102572	19930218
EP0556834 A3	19930929	EP19930102572	19930218
EP0556834 B1	19970611	EP19930102572	19930218
JP3283313 B2	20020520	JP19930000271	19930105
JP5345926 A2	19931227	JP19930000271	19930105
KR960006584 B1	19960520	KR19930002319	19930219
US6063214 A	20000516	US19940287473	19940808

Priority:

JP19920035034 19920221 JP19930000271 19930105 US19940287473 19940808
US19930020057 19930219

Probable Assignee: KAWASAKI STEEL CO

Assignee(s): (std): KAWASAKI STEEL CO ; KAWASAKI STEEL K K

Assignee(s): KAWASAKI STEEL KK ; KAWASAKI STEEL CORP ; KAWASAKI STEEL CORP KOBE
HYOGO JP ; JFE STEEL CORP

Inventor(s): (std): FUJINAGA CHIKAKO ; KATO TOSHIYUKI ; KUKUMINATO HIDEO ; OKAWA
YOSHIHIRO ; KUGUMINATO HIDEO ; OKAWA YOSHIHIRO ; SATO KAKU ;
SATO SATORU ; TOSAKA AKIO

Inventor(s): TOSAKA AKIO C O TECHNICAL RESEARCH DIV ; SATO KAKU C O CHIBA WORKS
CHIBA SHI CHIBA 260 JP ; KUGUMINATO HIDEO C O CHIBA WORKS CHIBA SHI
CHIBA 2 ; KUGUMINATO HIDEO C O CHIBA WORKS CHIBA SHI... ; OKAWA
YOSHIHIRO C O CHIBA WORKS CHIBA SHI CHIBA 26 ; OKAWA YOSHIHIRO C O
CHIBA WORKS CHIBA SHI... ; KATO TOSHIYUKI C O TECHNICAL RESEARCH DIV
; FUJINAGA CHIKAKO C O TECHNICAL RESEARCH DIV CHIBA ; FUJINAGA
CHIKAKO C O TECHNICAL RESEARCH DIV...

Designated states: DE FR GB NL

Title: METODOS Y SISTEMAS PARA LA FABRICACION DE MATERIALES DE EM- PAQUE, RECIPIENTES Y OTROS PRODUCTOS DE MEZCLAS QUE FRAGUAN HIDRAULICAMENTE COMPUESTOS CON ALTO RELLENO INORGANICO. METHODS AND SYSTEMS FOR MAKING MATERIALS PARKS EM, VESSELS AND OTHER PRODUCTS hydraulically setting MIXING WITH HIGH FILLING INORGANIC COMPOUNDS. (Machine translation)

Abstract: Source: CO4180428A UN ARTICULO DE FABRICACION QUE TIENE UNA MATRIZ ESTRUCTURAL CONRELLENO INORGANICO QUE COMPRENDE UN AGLUTINANTE ORGANICO DISPERSABLE EN AGUA; UN AGREGADO INORGANICO QUE TIENE UNA CONCENTRACION DENTRO DEL RANGO DE ENTRE 40 percent Y 98 percent EN VOLUMEN DEL TOTAL DE SOLIDOS EN LA MATRIZ ESTRUCTURAL CON RELLENO INORGANICO; Y UN MATERIAL FIBROSO, TENIENDO DICHA MATRIZ ESTRUCTURAL CON RELLENO INORGANICO UN GROSOR DENTRO DEL RANGO DE ENTRE 0.01 nm Y 20 nm.7UN METODO PARA FABRICAR UN ARTICULO COMPRENDIENDO EL METODO LOS PASOS DE: MEZCLAR UN AGLUTINANTE DE POLIMERO ORGANICO, UN AGREGADO INORGANICO, AGUA Y FIBRAS CON EL FIN DE FORMAR UNA MEZCLA MOLDEABLE, ESTANDO INCLUIDO EL AGREGADO INORGANICO EN UNA CANTIDAD DENTRO DEL RANGO ENTRE 40 percent Y 98 percent EN VOLUMEN DEL TOTAL DE SOLIDOS EN LA MEZCLA; MOLDEAR LA MEZCLA EN LA FORMA ESTABLE DEL ARTICULO Y ENDURECER LA MEZCLA EN UNA FORMA ESTABLE DEL ARTICULO, TENIENDO EL ARTICULO UNA MATRIZ ESTRUCTURAL.18UN SISTEMA PARA FABRICAR UN ARTICULO, QUE COMPRENDE: UNA MEZCLADORA ESTRUCTURADA PARA PREPARAR UNA MEZCLA MOLDEABLE QUE INCLUYA UN AGLUTINANTE DE POLIMERO ORGANICO, UN AGREGADO INORGANICO QUE TIENE UNA CONCENTRACION EN EL RANGO ENTRE 40 percent Y 98 percent EN VOLUMEN DEL TOTAL DE SOLIDOS EN LA MEZCLA, AGUA Y FIBRAS; MEDIOS PARA MOLDEAR LA MEZCLA MOLDEABLE EN LA FORMA DESEADA Y LOGRAR ESTABILIDAD DE FORMA EN MENOS DE UN MINUTO Y MEDIOS PARA ENDURECER LA MEZCLA EN LA FORMA DESEADA DEL ARTICULO. An article of manufacture having a structural CONRELLENO MATRIX INORGANIC ORGANIC comprising a binder dispersible in water; INORGANIC an aggregate having a concentration in the range between 40 percent and 98 percent by volume of the total solids in MATRIX FILLED STRUCTURAL INORGANIC; And a fibrous material, said structural matrix STUFFED WITH INORGANIC a thickness in the range between 0.01 nm and 20 nm.7UN method for making an article the method comprising the steps of: mixing an organic polymer binder, an aggregate inorganic WATER And fibers in order to form a moldable mixture, BEING INCLUDED IN THE AGGREGATE INORGANIC an amount within the range of between 40 percent and 98 percent by volume of the total solids in the mixture; Molding the mixture in stable shape of the article and curing the mixture into a stable form of the article, the article having MATRIX SYSTEM ESTRUCTURAL.18UN making an article, comprising: a STRUCTURED MIXER FOR PREPARING A moldable mixture including a binder ORGANIC POLYMER, INORGANIC an aggregate having a concentration in a range between 40 percent and 98 percent by volume of the total solids in the mixture, water and fibers; MEDIA MOLDEABLE molding the mixture into desired shape and form stability ACHIEVE IN LESS THAN ONE MINUTE AND MEANS FOR HARD MIX IN ARTICLE desired shape.

Classifications:

International (IPC 8-9): A47G19/12 (Advanced/Invention);
A47G19/00 (Core/Invention)

International (IPC 1-7): A47G19/12

Family:

Publication number	Publication date	Application number	Application date
CO4180428 A1	19950607	CO19940005882	19940216

Priority:

CO19940005882 19940216

Probable Assignee: E KHASHOGGI IND

Assignee(s): (std): E KHASHOGGI IND

Assignee(s): E KHASHOGGI INDUSTRIES

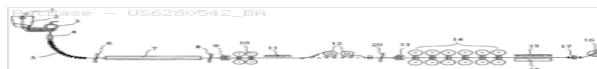
Inventor(s): (std): ANDERSEN PER JUST ; HODSON SIMON K
Inventor(s): JUST ANDERSEN PER ; SIMON K HODSON
Agent(s): XIMENA BONILLA PEREIRA

Title: Method and apparatus for the manufacture of a **steel** strip

Abstract:

Source: US6280542B Method for the manufacture of a

steel strip, wherein molten **steel** is cast into a slab, conveyed through a furnace, roughed in a roughing apparatus and finish-rolled in a finishing apparatus. The method comprises an endless or semi-endless process having either step a or step b, wherein a and b respectively comprise (a) manufacturing a ferritically rolled **steel** strip, wherein the slab is rolled in the roughing apparatus in the austenitic range and then cooled to a ferritic structure, and wherein the strip is rolled in the finishing apparatus at speeds essentially corresponding to the entry speed into the finishing apparatus, and (b) manufacturing an austenitically rolled **steel** strip, wherein the strip leaving the roughing apparatus is heated to the austenitic range and is rolled in the finishing apparatus and then cooled down to the ferritic range. In both step a and b, there is no material connection between the **steel** in the continuous casting machine and the **steel** being rolled in the finishing apparatus, and the strip is fed from the roughing apparatus to the finishing apparatus without intermediate storage. Additional steps include cutting the ferritically or austenitically rolled strip, after reaching the desired finished thickness, to portions of the desired length, and coiling the cut portions.



Classifications:

International (IPC 8-9): B21B1/22 B21B1/26 B21B1/46 B21B13/22 B21B3/00 B21B37/74

B22D11/12 B22D11/128 B22D11/20 C21D8/02 C21D8/04 (Advanced/Invention);

B21B1/46 B21B3/00 B22D11/12 B22D11/128 B22D11/20 (Advanced/Non-invention);

B21B1/00 B21B1/26 B21B1/46 B21B3/00 B22D11/12 B22D11/128 B22D11/20 C21D8/00 C21D8/02 C21D8/04 (Core/Invention)

International (IPC 1-7): B21B B21B 1/26 B21B 1/46 B21B1/26 B21B1/46 B21B13/22 B21B3/00 B21B37/74 B22D11/12 B22D11/128 B22D11/20 C21D8/02 C21D8/04

CPC: B21B1/26 B21B1/466 B21B2201/02 B21B2201/04 B21B2201/16 C21D8/0226

European: B21B1/26 B21B1/46N C21D8/02D2 L21B201/02 L21B201/04 L21B201/16

US: 148/321 148/541 164/417 164/476 266/103 266/113

Family:

Publication number	Publication date	Application number	Application date
AT276054 E	20041015	AT19970926273T	19970609
AU199731078 A1	19980105	AU19970031078	19970609
AU722051 B2	20000720	AU19970031078	19970609
BRPI9709545 A	19990810	BR1997PI09545	19970609
CA2257472 AA	19981207	CA19972257472	19970609
CA2257472 C	20021203	CA19972257472	19970609
CN1150064 C	20040519	CN19971096265	19970609
CN1225043 A	19990804	CN19971096265	19970609
CZ299298 B6	20080611	CZ19980004017	19970609
CZ9804017 A3	19991117	CZ19980004017	19970609
DE69730750 D1	20041021	DE19976030750	19970609
DE69730750 T2	20050929	DE19976030750T	19970609
EP1007232 A1	20000614	EP19970926273	19970609
EP1007232 B1	20040915	EP19970926273	19970609
ES2225973 T3	20050316	ES19970926273T	19970609
ID17728 A	19980122	ID19970001934	19970606
JP2000503906 T2	20000404	JP19980500448T	19970609
KR100356735 B1	20030124	KR19980710149	19981207
KR20000016559 A	20000325	KR19980710149	19981207
NL1003293 A1	19971210	NL19961003293	19960607
NL1003293 C2	19971210	NL19961003293	19960607
PL184894 B1	20030131	PL19970330326	19970609
PL330326 A1	19990510	PL19970330326	19970609
PT1007232 T	20050131	PT19970926273T	19970609

RU2172652 C2	20010827	RU19990100328	19970609
RU99100328 A	20001127	RU19990100328	19990110
SK168498 A3	19991008	SK19980001684	19970609
SK285199 B6	20060803	SK19980001684	19970609
TH35707 A	19991105	TH19971002206	19970606
TR9802545 T2	19990322	TR19980002545T	19970609
US6280542 BA	20010828	US19990194948	19990407
WO9746332 A1	19971211	WO1997NL00325	19970609
ZA9705069 A	19980219	ZA19970005069	19970609

Priority:

NL19961003293 19960607 WO1997NL00325 19970609

Probable Assignee: CORUS STAAL BV

Assignee(s): (std): CORNELISSEN MARCUS CORNELIS MA ; HOOGOVS STAAL BV ; CORUS STAAL BV ; HARTOG HUIBERT WILLEM DEN ; GROOT ALDRICUS MARIA

Assignee(s): KHOGOVS STAAL B.V. ; HOOGOVS STAAL B V ; CORUSASTAALAB V ; CORUS TECHNOLOGY BV ; DEN HARTOG HUIBERT WILLEM ; CORNELISSEN MARCUS CORNELIS MARIA ; CORUS STAAL B V ; CORUS STAAL B V IJMUIDEN

Inventor(s): (std): CORNELISSEN CORNELIS ; CORNELISSEN MARCUS C M ; CORNELISSEN MARCUS CORNELIS MA ; DEN HARTOG HUIBERT WILLEM ; DEN HARTOG WILLEM ; HARTOG HUIBERT W DEN ; HARTOG HUIBERT WILLEM DEN ; HARTOG W DEN ; HUIBERT ; GROOT ALDRICUS M ; GROOT ALDRICUS MARIA ; GROOT MARIA ; MARIA CORNELISSEN MARCUS CORNE ; MARIA GROOT ALDRICUS

Inventor(s): MARIE CORNELIS MARIE CORNELISSEN ; W DEN HARTOG ; GROT ALDRIKUS MARIJA ; HUIBERT W DEN HARTOG ; HUIBERT WILLEM DEN HARTOG ; HULBERT WILLEM DE HARTOG ; KORNELISSEN MARKUS KORNELIS MARIJA ; MARCUS C M CORNELISSEN ; MARCUS CORNELIS MARIA CORNELISSE ; MARCUS CORNELIS MARIA CORNELISSEN ; DEN KHARTOG KHEJBERT VILLEM ; ALDRICUS M GROOT ; ALDRICUS MARIA GROOT ; CORNELISSEN MARCUS CORNELIS MARIA ; DEN HARTOG HUIBERT W

Agent(s): PHILLIPS ORMONDE FITZPATRICK; RIDOUT AND MAYBEE LLP

Designated states: AL AM AT AU AZ BA BB BE BF BG BJ BR BY CA CF CH CN CU CZ DE DK EE ES FI FR GB GE GH GR HU IE IL IS IT JP KE KG KP KR KZ LC LI LK LR LS LT LU LV MC MD MG MK MN MW MX NL NO NZ PL PT RO RU SD SE SG SI SK SZ TJ TM TR TT UA UG US UZ VN

Title: A method of producing metal **cans** and metal **cans** produced thereby

Abstract:

Source: EP0868951A2 A process for producing metal **cans** (7) from a feedstock (1) comprising a low carbon **steel** strip or sheet coated on each of its surfaces with a coherent laminated coating of a thermoplastic polymer material. The process includes one or more redrawing stages in which the side walls are reduced in thickness by a stretching operation, and forming in the can base an inwardly projecting dome bordered by upstanding walls which subtend an angle of between 0 and 5 DEG to the vertical.



Classifications:

International (IPC 8-9): B21D22/22 B21D22/30 B21D51/26 B65D1/16 B65D1/28 (Advanced/Invention);

B21D22/20 B21D51/26 B65D1/00 B65D1/22 (Core/Invention)

International (IPC 1-7): B21D51/26 B65D1/0

CPC: B21D22/22 B21D22/30 B21D51/26 B65D1/165 B65D1/28

European: B21D22/22 B21D22/30 B21D51/26 B65D1/16B B65D1/28

Family:

Publication number	Publication date	Application number	Application date
AT275013 E	20040915	AT19980302604T	19980402
DE69825930 D1	20041007	DE19986025930	19980402
DE69825930 T2	20050929	DE19986025930T	19980402
EP0868951 A2	19981007	EP19980302604	19980402
EP0868951 A3	19990324	EP19980302604	19980402
EP0868951 B1	20040901	EP19980302604	19980402
ES2227772 T3	20050401	ES19980302604T	19980402
GB200029668 A0	20010117	GB20000029668	19970404
GB2323803 A1	19981007	GB19970006873	19970404
GB2323803 B2	20010919	GB19970006873	19970404
GB2355679 A1	20010502	GB20000029668	19970404
GB2355679 B2	20010919	GB20000029668	19970404
GB9706873 A0	19970521	GB19970006873	19970404

Priority:

GB20000029668 19970404 GB19970006873 19970404

Probable Assignee: CORUS UK LTD

Assignee(s): (std): BRITISH STEEL LTD ; BRITISH STEEL PLC ; CORUS UK LTD ; REDICON CORP

Assignee(s): REDICON CORP CANTON ; CORUS UK LTD LONDON

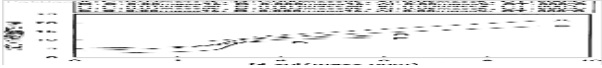
Inventor(s): (std): BASTABLE BRIAN JOHN ; BULSO JOSEPH ; WILLIAMS JOHN SELWYN

Inventor(s): JOHN SELWYN WILLIAMS ; JOSEPH BULSO ; BRIAN JOHN BASTABLE

Designated states: AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE

Title: THIN **STEEL** SHEET FOR CAN EXCELLENT IN WORKABILITY AFTER HEAT TREATMENT, ITS PRODUCTION METHOD, AND PRODUCTION METHOD FOR ITS HOT ROLLED MATERIAL

Abstract:
Source: JP2003342682A
PROBLEM TO BE SOLVED: To provide a **high-strength** very-thin **steel** sheet for **cans** which is suitable to be used for a film-laminated can subjected to a heat treatment in the course of can production working and its production method. SOLUTION: A **steel** slab containing 0.05-0.1 mass percent C, 0.05 mass percent or less Si, 0.4-0.9 mass percent Mn, 0.02 mass percent or less P, 0.02 mass percent or less S, 0.04-0.1 mass percent Al, 0.0015-0.0050 mass percent N, 0.005 mass percent or less O, and 0.001-0.005 mass percent B is hot rolled to a thickness of 2 mm or less, then cold rolled to a thickness of 0.2 mm or less, and subjected to continuous annealing, temper rolling, and plating to give the objective a **high-strength** very thin **steel** sheet having an average r value of 1.0-1.6 and a DELTAr value of 0 plus or minus 0.3. This **steel** sheet, after a heat treatment conducted in the course of can production, has tensile properties such as a yield stress lower than 390 MPa, a total elongation of 20 percent or higher, and an elongation at yield point of 1-8 percent.



Classifications:
International (IPC 8-9): B21B1/22 B21B1/26 B21B3/00 B21B45/00 C21D9/48 C22C38/00 C22C38/06 (Advanced/Invention);
B21B1/22 B21B1/26 B21B3/00 B21B45/00 C21D9/48 C22C38/00 C22C38/06 (Core/Invention)
International (IPC 1-7): B21B1/22 B21B1/26 B21B3/00 B21B45/00 C21D9/48 C22C38/00 C22C38/06

Family:

Publication number	Publication date	Application number	Application date
JP2003342682 A2	20031203	JP20030066723	20030312

Priority:
JP20020066476 20020312 JP20030066723 20030312

Probable Assignee: JFE STEEL KK
Assignee(s): (std): JFE STEEL KK
Assignee(s): JFE STEEL CORP
Inventor(s): (std): ARAYA MAKOTO ; KUKUMINATO HIDEO ; OBATA YUKIO ; SATO SATORU

Title: High Strength Steel Sheet for Can Body and Manufacturing Method Thereof

Abstract:

Source: KR100631859B



Machine translation: After the invention of the tin-plated core wire (wire seam) welding, beverage cans and beverage cans, a 3-piece crown (crown) is used for high-strength ultra-thin surface plate and its manufacturing method is about. The present invention, C: 0.06 ~ 0.08 percent (weight percent; less the same), Mn: 0.2 ~ 0.6 percent, Al (acid soluble Al; less the same): 0.01 ~ 0.04 percent, N: 0.007 ~ 0.015 percent, and Nb, V, Mo, at least one containing 0.005 ~ 0.02 percent and the rest consisting of Fe and unavoidable impurities jeosihyoseongui disc provides high-strength ultra-thin surface treatment. In addition, the present invention having the composition Al Killed the river Ar₃ at a temperature above the temperature of the hot rolling mill finishing the steps, 400 ~ 600 ° at a temperature of gwonchwhaneun step, after tax of 85 ~ 95 percent Steps to cold rolling mill to a rate of ~ 730 ° and recrystallization temperature from 20 to 60 seconds at a temperature of continuous annealing step consisting of a high intensity ultra-thin surface treatment jeosihyoseongui disc provides a method of manufacturing. According to the present invention, by selecting the appropriate component system typical cold rolling and subsequent annealing of the surface treatment disc through the strength can be manufactured economically. Beverage cans, surface treatment disc, jojildo, aging index.

Classifications:

International (IPC 8-9): C22C38/00 (Advanced/Invention);

C22C38/00 (Advanced/Non-invention);

C22C38/00 (Core/Invention)

CPC: C22C38/12 C21D8/0226 C21D8/0236 C22C38/001 C22C38/04 C22C38/06

Family:

Publication number	Publication date	Application number	Application date
KR100631859 B1	20061004	KR20040077813	20040930
KR20060028908 A	20060404	KR20040077813	20040930

Priority:

KR20040077813 20040930

Probable Assignee: POSCO

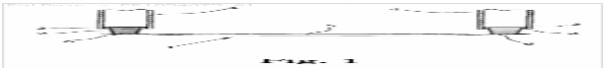
Assignee(s): (std): POSCO

Inventor(s): (std): KWAK JAI HYUN ; OH JIN KEUN ; PARK MAN YOUNG

Title: Motor vehicle bumper beam system

Abstract:

Source: EP1854675A1 The invention relates to a motor vehicle bumper beam system comprising an elongated, preferably some-what arc-like configured bumper beam (1) with a length that conforms to the width of the corresponding motor vehicle body, a crush can (2) at each end of the bumper beam (1), the crush can (2) extending generally perpendicular from the bumper beam (1), and a mounting member (3) associated to each crush can (2) for mounting the crush can (2) to a rigid part of a chassis, in particular to the front face of a longitudinal beam (4) of a chassis of a motor vehicle, wherein the bumper beam (1) is roll-formed as a single piece from **high-strength steel** sheet material. The bumper beam (1) over its entire length has a closed hollow cross section. The cross section of the bumper beam (1) in its middle section (5) is rectangular, circular, box-like, or, preferably, in the form of the letter B. It defines a specific full depth (D 1) of the bumper beam (1). The bumper beam (1) in its end sections (6) is pressed and thus flattened to a reduced depth (D 2) which is substantially less than the full depth (D 1). The crush **cans** are attached to the bumper beam (1) in the flattened end sections (6) of the bumper beam (1).



Classifications:

International (IPC 8-9): B60R19/18 (Advanced/Invention)

CPC: B60R19/18 B60R19/34 B60R2019/1826

European: B60R19/18 B60R19/34 L60R19/18B2H

Family:

Publication number	Publication date	Application number	Application date
AT518701 E	20110815	AT20060009737T	20060511
EP1854675 A1	20071114	EP20060009737	20060511
EP1854675 B1	20110803	EP20060009737	20060511

Priority:

EP20060009737 20060511

Probable Assignee: WAGON AUTOMOTIVE GMBH

Assignee(s): (std): WAGON AUTOMOTIVE GMBH

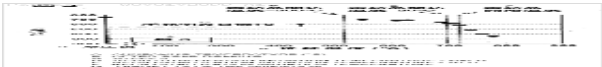
Inventor(s): (std): TOMLIN MATT

Agent(s): GESTHUYSEN VON ROHR AND EGGERT

Designated states: AL AT BA BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK NL PL PT RO SE SI SK TR YU

Title: PROCESSES FOR PRODUCTION OF STEEL SHEETS FOR CANS

Abstract:
A high-strength steel sheet for cans which has a tensile strength of 550 to 650MPa and a total elongation of 5 percent or above is obtained by conducting hot rolling with a finishing temperature of the Ar3 transformation temperature or above, cold rolling, and then recovery annealing at a temperature of the recrystallization initiation temperature minus 200 degrees centigrade to the recrystallization initiation temperature minus 20 degrees centigrade Further, the addition of Nb: 0.001 to 0.05 percent and/or B: 0.0001 to 0.005 percent brings about a steel sheet for cans which has a tensile strength of 550 to 700MPa and a total elongation of 4 percent or above while enabling the annealing in the same temperature range as that of conventional steel sheets for cans.



Classifications:
International (IPC 8-9): B21B3/00 C21D8/02 C21D9/46 C22C38/00 C22C38/04 C22C38/06 C22C38/12 (Advanced/Invention);
B21B3/00 C21D8/02 C21D9/46 C22C38/00 C22C38/06 C22C38/12 (Core/Invention)
International (IPC 1-7): C22C 38/00
CPC: C21D8/02 C21D9/46 C22C38/04 C22C38/06 C21D8/0426 C21D8/0436 C21D8/0473 C21D9/48 C22C38/004
European: C21D8/02 C21D9/46 C22C38/04 C22C38/06

Family:

Publication number	Publication date	Application number	Application date
CN101578381 A	20091111	CN200880001425	20080219
CN101578381 B	20130619	CN200880001425	20080219
EP2123780 A1	20091125	EP20080711889	20080219
EP2123780 A4	20101027	EP20080711889	20080219
EP2123780 B1	20151202	EP20080711889	20080219
JP2008202113 A2	20080904	JP20070041065	20070221
JP5076544 B2	20121121	JP20070041065	20070221
KR101128315 B1	20120412	KR20097010592	20080219
KR20090084885 A	20090805	KR20097010592	20080219
TH105550 A	20101230	TH20081000790	20080218
WO08102899 A1	20080828	WO2008JP53125	20080219

Priority:
JP20070041065 20070221 WO2008JP53125 20080219

Probable Assignee: JFE STEEL KK

Assignee(s): (std): IWASA HIROKI ; JFE STEEL CORP ; JFE STEEL KK ; KOJIMA KATSUMI ; NISHIHARA YUKA

Inventor(s): (std): HIROKI IWASA ; IWASA HIROKI ; KATSUMI KOJIMA ; KOJIMA KATSUMI ; NISHIHARA YUKA ; NISHIHARA YUKEI ; YUKA NISHIHARA

Agent(s): HOFFMANN EITLE; OCHIAI KENICHIRO

Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BR BW BY BZ CA CF CG CH CI CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IS IT KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PG PH PL PT RO RS RU SC SD SE SG SI SK SL SM SN SV SY SZ TD TG TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

Title: HIGH-STRENGTH STEEL SHEET FOR CAN AND METHOD FOR MANUFACTURING SAME

Abstract:

Source: US2011108168A A **steel** sheet for a can has a yield strength of 450 MPa or more, and the occurrence of cracking at a slab corner being prevented in a continuous casting process. The **steel** sheet contains 0.03 percent - 0.10 percent C, 0.01 percent - 0.5 percent Si, 0.001 percent - 0.100 percent P, 0.001 percent - 0.020 percent S, 0.01 percent - 0.10 percent Al, 0.005 percent - 0.012 percent N, and the balance being Fe and incidental impurities, in which when $Mn = Mn$ [percent by mass] - 1.71xS [percent by mass], Mn is in the range of 0.3 to 0.6. The **steel** sheet has microstructures that do not contain a pearlite microstructure.

Classifications:

International (IPC 8-9): B22D11/00 B22D11/043 B22D11/124 B22D11/22 C21D8/00 C21D8/02 C21D9/46 C22C38/00 C22C38/02 C22C38/04 C22C38/06 (Advanced/Invention);

B22D11/00 C21D9/46 C22C38/00 C22C38/06 (Advanced/Non-invention);

B22D11/00 B22D11/043 B22D11/124 B22D11/22 C21D8/02 C21D9/46 C22C38/00 C22C38/06 (Core/Invention)

CPC: C21D8/005 C22C38/04 B22D11/001 B22D11/124 C21D8/0436 C21D8/0442 C21D8/0473 C21D9/48 C21D2211/004 C21D2211/005 C22C38/001 C22C38/02 C22C38/06

European: B22D11/00A B22D11/124 C21D8/04D6 C21D8/04D8 C21D8/04F8 C22C38/00B C22C38/02 C22C38/06 M21D211/00D M21D211/00F M21D9/48

US: 148/320 148/320S 148/541 148/653

Family:

Publication number	Publication date	Application number	Application date
CN101978084 A	20110216	CN200980109649	20090318
EP2253729 A1	20101124	EP20090722774	20090318
EP2253729 A4	20140101	EP20090722774	20090318
EP2253729 B1	20150729	EP20090722774	20090318
JP2009221584 A2	20091001	JP20080070517	20080319
JP5526483 B2	20140618	JP20080070517	20080319
KR20100113641 A	20101021	KR20107020730	20090318
KR20130035273 A	20130408	KR20137004808	20090318
TH124145 A	20130531	TH20091001201	20090318
US2011108168 AA	20110512	US20090933117	20090318
US2015000798 AA	20150101	US20140487140	20140916
WO09116680 A1	20090924	WO2009JP56015	20090318

Priority:

JP20080070517 20080319 WO2009JP56015 20090318 US20100933117 20101201
US20140487140 20140916

Probable Assignee: JFE STEEL CORP

Assignee(s): (std): ARATANI MAKOTO ; IWASA HIROKI ; JFE STEEL CORP ; KOJIMA KATSUMI ; TANAKA TAKUMI ; KAWASAKI STEEL CO

Inventor(s): (std): ARATANI MAKOTO ; ARAYA MAKOTO ; HIROKI IWASA ; IWASA HIROKI ; KATSUMI KOJIMA ; KOJIMA KATSUMI ; MAKOTO ARATANI ; TAKUMI TANAKA ; TANAKA TAKUMI

Agent(s): GRUENECKER KINKELDEY STOCKMAIR AND SCHWANHAEUSSER
ANWALTSSOZIETAET; GRUENECKER PATENT U RECHTSANWAELTE PARTG MBB;
OCHIAI KENICHIRO

Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BR BW BY BZ CA CF CG CH CI CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IS IT KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PG PH PL PT RO RS RU SC SD SE SG SI SK SL

SM SN ST SV SY SZ TD TG TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

Title: HIGH-STRENGTH STEEL SHEET FOR CANS AND METHOD FOR MANUFACTURING THE SAME

Abstract:

Source: US2011076177A A steel sheet for cans that has a yield stress of at least 500 Mpa after coating and baking and a method for manufacturing the steel sheet for cans are provided. The steel sheet for cans contains, on the basis of mass percent, C: more than 0.02 percent but 0.10 percent or less, Si: 0.10 percent or less, Mn: 1.5 percent or less, P: 0.20 percent or less, S: 0.20 percent or less, Al: 0.10 percent or less, N: 0.0120 percent to 0.0250 percent, dissolved N being 0.0100 percent or more, and a remainder of Fe and incidental impurities. A high-strength material can be obtained by maintaining the absolute quantity of dissolved N at a certain value or more and performing hardening by quench aging and strain aging, for example, in a printing process, a film lamination process, or a drying and baking process performed before can manufacturing. In the manufacture, hot rolling is performed at a slab extraction temperature of 1200 degrees centigrade or more and a finish rolling temperature of (Ar3 transformation temperature-30) degrees centigrade or more, and coiling is performed at 650 degrees centigrade or less.

Classifications:

International (IPC 8-9): B21B1/26 B21B27/06 B21B3/02 C21D8/02 C21D9/46 C22C38/00

C22C38/02 C22C38/04 C22C38/06 C22C38/60 (Advanced/Invention);

B21B3/02 C21D8/02 C21D9/46 C22C38/00 (Advanced/Non-invention);

C21D8/02 C21D9/46 C22C38/00 C22C38/60 (Core/Invention);

C21D8/02 C21D9/46 C22C38/00 C22C38/02 C22C38/04 C22C38/06 (Core/Non-invention)

International (IPC 1-7): C21D8/02 C21D9/46 C22C38/00

CPC: C21D8/0263 B21B1/26 C21D8/0426 C21D8/0436 C21D8/0442 C21D8/0473 C21D2211/004

C22C38/001 C22C38/02 C22C38/04 C22C38/06 C22C38/60

European: C21D8/04D2 C21D8/04D6 C21D8/04D8 C21D8/04F8 C22C38/00B C22C38/02

C22C38/04 C22C38/06 M21D211/00D

US: 148/537 148/602 148/602S 148/603 420/103 420/103S 420/120 420/120S 420/128 420/128S 420/87 420/87P 72/200 72/200S 72/66

Family:

Publication number	Publication date	Application number	Application date
BRPI0911139 A2	20151006	BR2009PI11139	20090401
CN101983251 A	20110302	CN200980112164	20090401
CN103205657 A	20130717	CN201310108122	20090401
JP2009263788 A2	20091112	JP20090089936	20090402
JP5365312 B2	20131211	JP20090089936	20090402
KR101302817 B1	20130902	KR20107021741	20090401
KR20100119821 A	20101110	KR20107021741	20090401
KR20130045948 A	20130506	KR20137009033	20090401
TH112356 A	20120220	TH20091001513	20090402
TW200948985 A	20091201	TW20090111149	20090403
TWI390052 B	20130321	TW20090111149	20090403
US2011076177 AA	20110331	US20090935564	20090401
US2014174609 AA	20140626	US20140195598	20140303
WO09123356 A1	20091008	WO2009JP57153	20090401

Priority:

JP20080097011 20080403 WO2009JP57153 20090401 JP20090089936 20090402
US20100935564 20101202 US20140195598 20140303

Probable Assignee: JFE STEEL CORP

Assignee(s): (std): ARATANI MAKOTO ; JFE STEEL CORP ; JFE STEEL CORP ; KATO TOSHIKATSU ; TANAKA TAKUMI ; KOJIMA KATSUMI ; SUJITA SHIGEKO ; SATO KAKU ; KOIZUMI MASAKI ; KAWAMURA KATSUHITO ; KAWASAKI STEEL CO

Inventor(s): (std): ARAYA MAKOTO ; KAKU SATO ; KATO HISAKATSU ; KATO TOSHIKATSU ;

KATSUHITO KAWAMURA ; KATSUMI KOJIMA ; KAWAMURA KATSUHITO ;
KAWAMURA KATSUTO ; ARATANI MAKOTO ; KOIZUMI MASAKI ; MAKOTO
ARATANI ; MASAKI KOIZUMI ; SATO KAKU ; SATO SATORU ; KOJIMA KATSUMI
; SHIGEKO SUJITA ; SUJITA SHIGEKO ; TAKUMI TANAKA ; TANAKA TAKUMI ;
TOSHIKATSU KATO

Agent(s): OCHIAI KENICHIRO

Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BR BW BY BZ CA CF CG CH
CI CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE
GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IS IT KE KG KM KN KP KR KZ
LA LC LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ
NA NE NG NI NL NO NZ OM PG PH PL PT RO RS RU SC SD SE SG SI SK SL SM
SN ST SV SY SZ TD TG TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

Title: MANUFACTURING METHOD OF **STEEL** SHEET FOR **CANS**

Abstract:

Source: US2011272066A A method provides a slab by continuous casting of a **steel** having a component composition of, in mass percent, C: 0.005 percent or less, Mn: 0.05 to 0.5 percent, Al: 0.01 to 0.10 percent, N: 0.0010 to 0.0070 percent, B: 0.15xN to 0.75xN (0.15 to 0.75 in terms of B/N), and one or both of Nb: 4xC to 20xC (4 to 20 in terms of Nb/C) and Ti: 2xC to 10xC (2 to 10 in terms of Ti/C), and the balance of Fe and inevitable impurity elements; rough rolling the slab; finish rolling the rough-rolled slab wherein 5 percent or more and less than 50 percent of the total amount of rolling reduction in the finish rolling is hot-rolled at a temperature lower than the Ar₃ transformation point; winding the hot-rolled **steel** sheet at a winding temperature of 640 to 750 degrees centigrade; pickling the coiled **steel** sheet; cold rolling the pickled **steel** sheet at a rolling reduction rate of 88 to 96 percent; and annealing the cold-rolled **steel** sheet in a temperature range of higher than 400 degrees centigrade to a temperature that is 20 degrees centigrade lower than the recrystallization temperature.

Classifications:

International (IPC 8-9): B21B3/00 C21D8/02 C21D8/04 C21D9/46 C21D9/48 C21D9/52

C22C38/00 C22C38/02 C22C38/04 C22C38/06 C22C38/14 (Advanced/Invention);

B21B3/00 C21D9/46 C22C38/00 C22C38/14 (Advanced/Non-invention);

B21B3/00 C21D9/46 C22C38/00 C22C38/14 (Core/Invention)

CPC: C21D9/52 C21D8/0426 C21D8/0436 C21D8/0463 C21D9/48 C21D2211/004 C21D2211/005

C22C38/001 C22C38/004 C22C38/02 C22C38/04 C22C38/06

European: C21D8/04D2 C21D8/04D6 C21D8/04F6 C22C38/00B C22C38/00D C22C38/02

C22C38/04 C22C38/06 C22C38/12 C22C38/14 M21D211/00D M21D211/00F M21D9/48

US: 148/541 148/603 148/650 148/651

Family:

Publication number	Publication date	Application number	Application date
CN102264923 A	20111130	CN200980152664	20091222
CN102264923 B	20140730	CN200980152664	20091222
EP2380999 A1	20111026	EP20090835098	20091222
EP2380999 A4	20140101	EP20090835098	20091222
EP2380999 B1	20150527	EP20090835098	20091222
JP2010150571 A2	20100708	JP20080327064	20081224
JP5272714 B2	20130828	JP20080327064	20081224
KR101264537 B1	20130514	KR20117014293	20091222
KR20110095388 A	20110824	KR20117014293	20091222
US2011272066 AA	20111110	US20090141129	20091222
US8372221 BB	20130212	US20090141129	20091222
WO10074308 A1	20100701	WO2009JP71844	20091222

Priority:

JP20080327064 20081224 WO2009JP71844 20091222

Probable Assignee: JFE STEEL CORP

Assignee(s): (std): ARATANI MAKOTO ; IWASA HIROKI ; JFE STEEL CORP ; KOJIMA KATSUMI ; TADA MASAKI ; TANAKA TAKUMI ; KAWASAKI STEEL CO

Inventor(s): (std): ARATANI MAKOTO ; ARAYA MAKOTO ; IWASA HIROKI ; KOJIMA KATSUMI ; TADA MASAKI ; TANAKA TAKUMI

Agent(s): GRUENECKER KINKELDEY STOCKMAIR AND SCHWANHAEUSSER; GRUENECKER PATENT U RECHTSANWAELTE PARTG MBB; DLA PIPER LLP (US); DLA PIPER LLP; OCHIAI KENICHIRO

Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IS IT KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX

MY MZ NA NE NG NI NL NO NZ OM PE PG PH PL PT RO RS RU SC SD SE SG SI
SK SL SM SN ST SV SY SZ TD TG TJ TM TN TR TT TZ UA UG US UZ VC VN ZA
ZM ZW

Title: TIN MILL BLACK PLATE AND METHOD FOR MANUFACTURING THE SAME

Abstract:

Source: US2013045128A A **high-strength**, high-workability tin mill black plate contains 0.070 percent to less than 0.080 percent C, 0.003 percent to 0.10 percent Si, 0.51 percent to 0.60 percent Mn, and the like on a mass basis and has a tensile strength of 500 MPa or more and a yield elongation of 10 percent or more. The average size and elongation rate of crystal grains are 5 micro m or more and 2.0 or less, respectively, in cross section in the rolling direction thereof. The hardness difference obtained by subtracting the average Vickers hardness of a cross section ranging from a surface to a depth equal to one-eighth of the thickness of the plate from the average Vickers hardness of a cross section ranging from a depth equal to three-eighths of the plate thickness to a depth equal to four-eighths of the plate thickness is 10 points or more and/or the maximum Vickers hardness difference is 20 points or more.



Classifications:

International (IPC 8-9): B21B1/08 B21B1/22 B21B3/00 B22D11/00 B22D11/12 C21D1/06 C21D1/76 C21D8/02 C21D8/04 C21D9/46 C21D9/48 C22C38/00 C22C38/02 C22C38/04 C22C38/06 C23C8/26 (Advanced/Invention);

C21D1/76 C21D9/46 C22C38/02 C22C38/04 (Core/Invention);

C22C38/02 C22C38/04 (Core/Non-invention)

CPG: C21D8/0426 C21D8/0436 C21D8/0468 C21D8/0226 C21D8/0236 C21D8/0268 C22C38/002 B22D11/001 B22D11/12 C21D9/48 C21D2211/005 C21D9/46 C22C38/001 C22C38/02 C22C38/04 C22C38/06

European: C21D8/02A C21D8/02D2 C21D8/02D6 C21D8/02F7 C21D9/46 C21D9/48 C22C38/00B C22C38/00C C22C38/02 C22C38/04 C22C38/06

US: 148/541 148/557 148/584 148/602 148/603 164/476 420/128 72/199

Family:

Publication number	Publication date	Application number	Application date
CA2818682 AA	20130521	CA20112818682	20111122
CN102639740 A	20120815	CN201080054643	20101129
CN102639740 B	20131225	CN201080054643	20101129
CN103270183 A	20130828	CN201180057570	20111122
EP2508641 A1	20121010	EP20100834679	20101129
EP2508641 A4	20130731	EP20100834679	20101129
EP2508641 B1	20151104	EP20100834679	20101129
EP2634282 A1	20130904	EP20110845152	20111122
IN01337KN2012 A	20130201	IN2012KN01337	20120531
IN01566KN2013 A	20131011	IN2013KN01566	20130520
JP2011137223 A2	20110714	JP20100268084	20101201
JP4957843 B2	20120620	JP20100268084	20101201
KR101570755 B1	20151127	KR20137016568	20111122
KR20130087597 A	20130806	KR20137016568	20111122
TH128044 A	20131007	TH20101001830	20101201
TH132784 A	20140411	TH20111003414	20111129
TW201127968 A	20110816	TW20100141779	20101201
TWI428453 B	20140301	TW20100141779	20101201
US2013045128 AA	20130221	US20100513113	20101129
US2013294963 AA	20131107	US20110990596	20111122
US8557065 BB	20131015	US20100513113	20101129
WO11068231 A1	20110609	WO2010JP71768	20101129
WO12073914 A1	20120607	WO2011JP77446	20111122

Priority:

JP20090274343 20091202
WO2011JP77446 20111122

WO2010JP71768 20101129

JP20100268084 20101201

Probable Assignee: JFE STEEL CORP

Assignee(s): (std): IWASA HIROKI ; JFE STEEL CORP ; KAWASAKI STEEL CO ; KOJIMA KATSUMI ;
TADA MASAKI ; TANAKA TAKUMI ; TOBIYAMA YOICHI

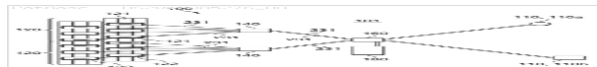
Inventor(s): (std): HIROKI IWASA ; IWASA HIROKI ; KATSUMI KOJIMA ; KOJIMA KATSUMI ;
MASAKI TADA ; TADA MASAKI ; TAKUMI TANAKA ; TANAKA TAKUMI ;
TOBIYAMA YOICHI

Agent(s): ROBIC; HOFFMANN EITLE; RATNERPRESTIA; OCHIAI KENICHIRO

Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BR BW BY BZ CA CF CG CH
CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD
GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IS IT KE KG KM KN KP KR
KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX
MY MZ NA NE NG NI NL NO NZ OM PE PG PH PL PT QA RO RS RU RW SC SD SE
SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC
VN ZA ZM ZW

Title: SUBSEA AUTONOMOUS DISPERSANT INJECTION SYSTEM AND METHODS

Abstract: Source: US2012085276A A system for autonomously supplying a chemical dispersant to a subsea hydrocarbon discharge site which comprises a subsea storage vessel configured to store the chemical dispersant subsea is described herein. The storage vessel includes a dispersant outlet in fluid communication with the subsea hydrocarbon discharge site.

**Classifications:**

International (IPC 8-9): B63B35/44 B63G8/00 B65D88/78 E02D27/04 E21B15/02 E21B17/01 E21B17/08 E21B33/038 E21B36/00 E21B43/00 E21B43/01 E21B43/013 E21B7/132 F04B17/02 F04B17/05 (Advanced/Invention);

E21B36/00 (Core/Invention)

CPC: E21B17/085 E21B33/038 E21B43/0122 B63C7/006 B63G8/00 B65D88/78 E21B17/015 E21B36/003 E21B36/005 E21B17/01 E21B43/0107 F04B17/05 F04B17/02 E21B43/013 E21B19/004 E21B34/04

European: E21B17/01F E21B17/08A E21B33/038 E21B36/00C E21B36/00D E21B43/013 E21B43/01M L63C7/00E L63G8/00 L65D88/78

US: 114/257 166/335 166/345 166/350 166/367 166/369 166/369S 405/224.2 405/224.3

Family:

Publication number	Publication date	Application number	Application date
AU2011316731 AA	20120419	AU20110316731	20111011
AU2011316731 BB	20150924	AU20110316731	20111011
AU2011316732 AA	20120419	AU20110316732	20111011
AU2011316732 BB	20150924	AU20110316732	20111011
AU2011316751 AA	20120419	AU20110316751	20111011
AU2012101942 AD	20121101	AU20120101942	20120419
CA2810248 AA	20130301	CA20112810248	20111011
CA2811110 AA	20130311	CA20112811110	20111011
CA2814046 AA	20130405	CA20112814046	20111011
CN103154424 A	20130612	CN201180049446	20111011
CN103210178 A	20130717	CN201180049562	20111011
CN103228865 A	20130731	CN201180049579	20111011
EA201300217 A1	20130930	EA20130000217	20111011
EA201300437 A1	20130930	EA20130000437	20111011
EA201300439 A1	20130930	EA20130000439	20111011
EP2627859 A2	20130821	EP20110773946	20111011
EP2627860 A2	20130821	EP20110774144	20111011
IN04071DN2013 A	20141121	IN2013DN04071	20130506
MX2013003789 A1	20130807	MX20130003789	20130404
MX2013003789 A1	20130807	MX20130003789	20111011
MX2013003933 A1	20131025	MX20130003933	20130408
MX2013003933 A1	20131025	MX20130003933	20111011
MX2013003989 A1	20131008	MX20130003989	20130410
MX2013003989 A1	20131008	MX20130003989	20111011
US2012085276 AA	20120412	US20110271059	20111011
US2012085544 AA	20120412	US20110156224	20110608
US2013269947 AA	20131017	US20110878698	20111011
US2015122503 AA	20150507	US20150591545	20150107
US8960302 BB	20150224	US20110156224	20110608

WO12051148 A2	20120419	WO2011US55693	20111011
WO12051148 A3	20130516	WO2011US55693	20111011
WO12051149 A2	20120419	WO2011US55695	20111011
WO12051149 A3	20130404	WO2011US55695	20111011
WO12051168 A2	20120419	WO2011US55744	20111011
WO12051168 A3	20121220	WO2011US55744	20111011

Priority:

US20100392443P 20101012	US20100392899P 20101013	US20110445357P 20110222
US20110156224 20110608	US20110156258 20110608	US20110480368P 20110428
US20110271059 20111011	WO2011US55695 20111011	WO2011US55693 20111011
WO2011US55744 20111011	US20110878698 20111011	US20150591545 20150107

Probable Assignee: BP EXPLORATION OPERATING

Assignee(s): (std): HATTON STEVE ; KENNELLEY KEVIN ; FRANKLIN ROBERT W ; CORSO VICKI ; GREENE WALTER ; GULGOWSKI PAUL W ; CHILTON PAT ; HUGHES JOHN D ; GULGOWSKI JR PAUL W ; THETHI RICKY ; SHILLING ROY ; NGUYEN CHAU ; OLDFIELD TONY ; MAULE PHILIP D ; STEELE GRAEME ; WILKINSON DAVID ; REEVES HAROLD ; OPENSHAW GRAHAM ; ROGERS JON ; BALLARD ADAM L ; BP CORP NORTH AMERICA INC ; BP EXPLORATION OPERATING ; WILKINSON DAVID E

Assignee(s): BP EXPLORATION OPERATING CO LTD ; BP NORTH AMERICA INC CORP ; REEVES HAROLD J ; GULGOWSKI PAUL W JR

Inventor(s): (std): BALLARD ADAM L ; CHILTON PAT ; CORSO VICKI ; FRANKLIN ROBERT W ; GREENE WALTER ; GULGOWSKI JR PAUL W ; GULGOWSKI PAUL W ; HATTON STEVE ; HUGHES JOHN D ; KENNELLEY KEVIN ; MAULE PHILIP D ; NGUYEN CHAU ; OLDFIELD TONY ; OPENSHAW GRAHAM ; REEVES HAROLD ; REEVES HAROLD J ; ROGERS JON ; SHILLING ROY ; STEELE GRAEME ; THETHI RICKY ; WILKINSON DAVID ; WILKINSON DAVID E ; SMITH TREVOR PAUL DEAN ; SHEPHERD PAUL ; GULGOWSKI PAUL W JR ; EGGERT STEVE ; BLALOCK DOUGLAS PAUL

Inventor(s): WALTER GREENE ; VICKI CORSO ; TONY OLDFIELD ; STEVE HATTON ; ROY SHILLING ; ROBERT W FRANKLIN ; RICKY THETHI ; PHILIP D MAULE ; PAUL W GULGOWSKI JR ; KEVIN KENNELLEY ; GRAEME STEELE ; DAVID WILKINSON ; CHAU NGUYEN ; ADAM L BALLARD ; PAT CHILTON ; JOHN D HUGHES ; JON ROGERS ; HAROLD REEVES ; GRAHAM OPENSHAW

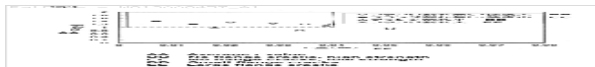
Agent(s): SHELSTON IP; SHELSTON IP PTY LTD; GOWLING LAFLEUR HENDERSON LLP; HAMER CHRISTOPHER K; CONLEY ROSE PC; WOOD JOHN L; SHUNG ALBERT K

Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IS IT JP KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PE PG PH PL PT QA RO RS RU RW SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

Title: **STEEL** SHEET FOR CAN AND PROCESS FOR PRODUCING SAME

Abstract:

Provided are a **high-strength steel** sheet for **cans** which has excellent flangeability and a process for producing the **steel** sheet. The **steel** sheet contains, in terms of mass percent, 0.001-0.040 percent, excluding 0.040 percent, C, 0.003-0.100 percent Si, 0.10-0.60 percent Mn, 0.001-0.100 percent P, 0.001-0.020 percent S, 0.005-0.100 percent Al, and 0.0130-0.0170 percent, excluding 0.0130 percent, N, with the remainder comprising Fe and incidental impurities. The **steel** sheet has a value of (N total)-(N as AlN) (wherein "N total" is the total content of N and "N as AlN" is the content of N present as AlN) of 0.0100-0.0160 percent and an average plastic strain ratio, i.e., average r value, of higher than 1.0. The **high-strength steel** sheet is obtained by conducting hot rolling, winding the sheet at a temperature below 630 degrees C, cold-rolling the sheet at a rolling reduction of 91.5 percent or more, and subjecting the sheet to annealing and then secondary cold rolling at a rolling reduction of 20 percent or less.



Classifications:

International (IPC 8-9): C21D8/02 C21D9/46 C22C38/00 C22C38/06

C22C38/50 (Advanced/Invention);

C22C38/50 (Advanced/Non-invention);

C21D9/46 C22C38/00 C22C38/06 C22C38/50 (Core/Invention)

CPC: C22C38/04 C22C38/001 C22C38/02 C22C38/06 C21D8/0426 C21D8/0442 C21D8/0468 C21D8/0473 C21D9/08 C21D9/46 C22C38/004 C22C38/50

Family:

Publication number	Publication date	Application number	Application date
CN103649353 A	20140319	CN201280034146	20120711
CO6880059 A2	20140228	CO20140028689	20140211
JP2013019027 A2	20130131	JP20110153718	20110712
JP5794004 B2	20151014	JP20110153718	20110712
KR20140030334 A	20140311	KR20147002973	20120711
TH134397 A	20140606	TH20121003464	20120711
TW201311912 A	20130316	TW20120125056	20120712
WO13008457 A1	20130117	WO2012JP04467	20120711

Priority:

JP20110153718 20110712 WO2012JP04467 20120711

Probable Assignee: JFE STEEL CORP

Assignee(s): (std): JFE STEEL CORP ; KAWASAKI STEEL CO ; KOJIMA KATSUMI ; TADA MASAKI ; TOBIYAMA YOICHI ; TANAKA TAKUMI

Inventor(s): (std): TOBIYAMA YOICHI ; TANAKA TAKUMI ; TADA MASAKI ; KOJIMA KATSUMI

Agent(s): KUMASAKA AKIRA ET AL

Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IS IT KE KG KM KN KP KR KZ LA LC LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PE PG PH PL PT QA RO RS RU RW SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

Title: HIGH-STRENGTH HIGH-PROCESSABILITY STEEL SHEET FOR CANS AND METHOD FOR PRODUCING SAME

Abstract:

Provided are a high-strength high-processability steel sheet for cans and a method for producing the same.

The steel sheet for cans comprises: 0.001-0.080 percent inclusive of C; 0.003-0.100 percent inclusive of Si; 0.10-0.80 percent inclusive of Mn; 0.001-0.100 percent inclusive of P; 0.001-0.020 percent inclusive of S; 0.005-0.100 percent inclusive of Al; 0.0050-0.0150 percent inclusive of N; and 0.0002-0.0050 percent inclusive of B, with the balance being Fe and unavoidable impurities. In a cross section in the rolling direction, the steel sheet for cans contains 0.01-1.00 percent, in terms of area, of crystal grains that have a crystal-grain elongation rate of 5.0 or greater. The steel sheet for cans can be obtained by using a slab re-heating temperature of 1200°C or higher, hot-rolling a slab, then winding the same at a temperature lower than 650°C, conducting primary cold-rolling, subsequently conducting continuous annealing at a soaking temperature of 680-760°C for a soaking time of 10-20 seconds, and then conducting secondary cold-rolling at a rolling ratio of 20 percent or less.

Classifications:

International (IPC 8-9): B21B1/24 B21B3/00 B21D51/26 C21D9/46 C22C38/00 C22C38/02 C22C38/04 C22C38/06 C22C38/54 (Advanced/Invention);

B21B1/24 B21B3/00 B21D51/26 C22C38/02 C22C38/04 (Core/Invention)

CPC: C21D9/00 C21D8/0426 C21D8/0436 C21D8/0468 C21D9/48 C21D9/46 C22C38/001 C22C38/002 C22C38/02 C22C38/04 C22C38/06

Family:

Publication number	Publication date	Application number	Application date
CN103717770 A	20140409	CN201280037600	20120727
JP2013028842 A2	20130207	JP20110166110	20110729
JP5810714 B2	20151111	JP20110166110	20110729
TH134419 A	20140606	TH20121003810	20120727
TW201313348 A	20130401	TW20120127171	20120727
TWI460029 B	20141111	TW20120127171	20120727
WO13018334 A1	20130207	WO2012JP04790	20120727

Priority:

JP20110166110 20110729 WO2012JP04790 20120727

Probable Assignee: JFE STEEL CORP

Assignee(s): (std): JFE STEEL CORP ; KAWASAKI STEEL CO ; KOJIMA KATSUMI ; TANAKA TAKUMI ; TOBIYAMA YOICHI

Inventor(s): (std): TOBIYAMA YOICHI ; TANAKA TAKUMI ; KOJIMA KATSUMI

Agent(s): KUMASAKA AKIRA ET AL

Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IS IT KE KG KM KN KP KR KZ LA LC LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PE PG PH PL PT QA RO RS RU RW SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VN ZA ZM ZW

Title: BUMPER BEAM WITH LOAD TRANSFERRING SECTION

Abstract: Source: US2013069377A A motor vehicle includes a frame with energy-absorbing zones at outboard corners of the vehicle and a bumper beam mounted to the energy-absorbing zones to transfer force to at least one of the energy-absorbing zones during a collision. The bumper beam includes a center section extending generally laterally across the vehicle between the energy-absorbing zones, and left and right load transfer sections attached to outboard ends of the center section. Each load transfer section extends outboard and rearward such that the free end of each load transfer section is disposed outboard of the frame adjacent a rear end of its respective energy-absorbing zone. In a small-overlap collision, the load transfer section on the side of the impact bends rearward as the energy-absorbing zone deforms, and the free end of the load transfer section contacts the frame to transfer crash loads to the frame.



Classifications:
International (IPC 8-9): B60R19/02 B60R19/34 B62D21/15 (Advanced/Invention)
CPC: B60R19/34
US: 293/133 293/154 296/187.09 296/187.1

Family:

Publication number	Publication date	Application number	Application date
CN202827426 U	20130327	CN201220439377U	20120830
US2013069377 AA	20130321	US20110235925	20110919
US8454080 BB	20130604	US20110235925	20110919

Priority:
US20110235925 20110919

Probable Assignee: FORD GLOBAL TECHNOLOGIES LLC

Assignee(s): (std): DONABEDIAN EDGAR EDWARD ; FORD GLOBAL TECH LLC ; FORD GLOBAL TECHNOLOGIES INC ; SCHMIDT KENNETH R ; GUSTAFSON KEVIN ; QU YI
Assignee(s): FORD GLOBAL TECHNOLOGIES LLC ; FORD GLOBAL TECHNOLGIES LLC
Inventor(s): (std): DONABEDIAN EDGAR EDWARD ; GUSTAFSON KEVIN ; QU YI ; SCHMIDT KENNETH R ; KEVIN GUSTAFSON ; KENNETH R SCHMIDT ; EDGAR EDWARD DONABEDIAN
Inventor(s): KENNETH RSCHMIDT
Agent(s): JASON; BROOKS KUSHMAN P C; BROOKS KUSHMAN PC

Title: METHOD FOR PRODUCING PACKAGING **STEEL****Abstract:**

Source: US2015010779A The invention relates to a method for producing packaging **steel** consisting of a cold-rolled **steel** sheet made of unalloyed or low-alloy **steel** having a carbon content of less than 0.1 percent. In order to provide **high-strength** packaging **steel** that has good formability and high corrosion resistance and can be produced in as energy-saving a manner as possible, the **steel** sheet according to the invention is first coated with a metallic coating and then annealed in a recrystallising manner at a heating rate of more than 75 K/s and preferably more than 100 K/s to temperatures of more than 700 degrees centigrade, such that the metallic coating melts. The coated and annealed **steel** sheet is then quenched to normal temperature at a cooling rate of at least 100 K/s.

**Classifications:**

International (IPC 8-9): B32B15/01 B65D1/12 C21D1/18 C21D1/26 C21D1/42 C21D8/02 C21D9/46 C21D9/48 C22C38/00 C22C38/02 C22C38/04 C22C38/06 C22C38/18 C22C38/20 C22C38/22 C22C38/24 C22C38/26 C22C38/28 C22C38/32 C22C38/42 C22C38/44 C22C38/46 C22C38/48 C22C38/50 C22C38/54 C22F1/00 C23C2/00 C23C2/06 C23C2/26 C23C2/28 C23F17/00 C25D5/26 C25D5/50 (Advanced/Invention)

CPC: C23C2/06 C23C2/26 C23C2/28 C21D8/0236 C21D9/52 C22C38/18 C21D8/0273 C21D9/46 C21D1/42 C23F17/00 C21D1/18 C22C38/004 C22C38/20 C22C38/22 C22C38/24 C22C38/26 C22C38/28 C22C38/32 C22C38/001 C22C38/002 C22C38/008 B32B15/01 C21D2211/001 C21D1/26 C21D2211/002 C21D2211/005 C21D2211/008 C22C38/02 C22C38/04 C22C38/06 C22C38/42 C22C38/44 C22C38/46 C22C38/48 C22C38/50 C22C38/54 B32B15/015 B65D1/12 Y10T428/12 Y10T428/12722 Y10T428/12757 Y10T428/12799 Y10T428/12854 B32B15/012 B32B15/013 Y10T428/12972

US: 148/330 148/333 148/518 148/525 148/529 148/530 148/531 148/533 148/567 428/544 428/648 428/653 428/659 428/667 428/684

Family:

Publication number	Publication date	Application number	Application date
AU2012359105 AA	20130627	AU20120359105	20121002
AU2012359105 BB	20151105	AU20120359105	20121002
CA2857987 AA	20140603	CA20122857987	20121130
CN104011230 A	20140827	CN201280063600	20121130
DE102011056847 A1	20130627	DE201110056847	20111222
DE102011056847 B4	20140410	DE201110056847	20111222
EP2794936 A1	20141029	EP20120770463	20121002
EP2794937 A1	20141029	EP20120798685	20121130
JP2015507086 T2	20150305	JP20140547778T	20121002
JP2015508449 T2	20150319	JP20140547821T	20121130
JP5855761 B2	20160209	JP20140547821T	20121130
RU2014128999 A	20160220	RU20140128999	20121002
RU2575525 C1	20160220	RU20140129001	20121130
US2015010779 AA	20150108	US20120365654	20121130
US2015017469 AA	20150115	US20120367756	20121002
WO13091923 A1	20130627	WO2012EP69465	20121002
WO13092170 A1	20130627	WO2012EP74115	20121130

Priority:

DE201110056847 20111222 WO2012EP69465 20121002 WO2012EP74115 20121130

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HELMUTDE ; MATUSCH DIRKDE

Agent(s): SPRUSON AND FERGUSON; ROWAND LLP; CHARRIER RAPP AND LIEBAU; HIROE
AND ASSOCIATES PATENT PROFESSIONAL CORP

Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG
CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB
GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IS IT JP KE KG KM KN
KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT
MW MX MY MZ NA NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW
SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG
US UZ VC VN ZA ZM ZW

Title: TWO-COMPONENT POLYURETHANE FOAM APPLICATOR, PACKED IN **STEEL CANS** WITH A CAPACITY OF 1000 ML

Abstract:

Source: PL122128U Aplikator jest oprzyrządowaniem składającym się z pięciu elementów, to jest: zasobnika do mocowania dwóch puszek stalowych o pojemności 1000 ml, dwóch węży elastycznych zbrojonych 1/2", aplikatora dwudroznego oraz elementów jednorazowego użycia, to jest komory mieszania komponentów (A, B) i mieszadła statycznego. Po umieszczeniu puszek z komponentami (A, B) w zasobniku i przykreceniu węży następuje otwarcie zaworów puszek i wypełnienie węży komponentami, w następnej kolejności zwolniony zostaje język spustowy aplikatora dwudroznego, powodując przemieszczenie się komponentów (A, B) do komory mieszania, wymieszanie ich i aplikację dwukomponentowej piany w wybrane miejsce docelowe, otrzymując około 40 litrów wysokowytrzymałej substancji klejącej. Instrumentation applicator is composed of five elements, namely: a tray for mounting two **steel cans** with a capacity of 1000 ml, two snakes flexible reinforced 1/2 ", and the elements of the applicator two-way single-use, it is the mixing chamber of components (A, B) and static agitator. After placing the **cans** with the components (A, B) in the tray and screwing snakes opens **cans** and fill valves snakes components released in the next order of applicator trigger language is a two-way, causing the displacement out of components (A, B) the mixing chamber, **mixing them** and two-component foam applications in the selected destination, by receiving about 40 liters of **high-strength** adhesive substance.

Classifications:

International (IPC 8-9): B05C11/02 E04F21/00 (Advanced/Invention)

Family:

Publication number	Publication date	Application number	Application date
PL122128 U1	20141222	PL20130122128U	20130610

Priority:

PL20130122128U 20130610

Probable Assignee: RYTM L SPOLKA Z OGRANICZONA ODPOWIEDZIALNOSCIA

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