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(54) **Protection device for materials in coil form, in particular metal sheets**

Schutzvorrichtung für Materialien in Spulenform, insbesondere Metallbleche

Dispositif de protection pour matériaux en forme de bobine, en particulier des toles métalliques

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Description

[0001] The present invention relates to protection devices for materials in coil form, in particular for metal sheets in coil form. An example of such protection devices is known from US-5 236 087.

[0002] Metal sheets in the form of rolls - or "coils" as they are usually referred to - are normally moved by means of gantry cranes provided with "jaw" or "hook-like" parts which grip a coil, penetrating into the hollow part of the said coil.

[0003] During the moving operation, the jaws may score or in any case damage the part of the metal sheet with which they make contact.

[0004] The object of the present invention is to provide a protection device for materials in coil form, in particular for metal sheets in coil form, which prevents damage thereto, is simple to manufacture, is easy to fit and has a relatively low cost.

[0005] The present invention achieves the abovementioned objects by means of a protection device having the characteristic features which are mentioned specifically in the claims which follow.

[0006] Further characteristic features and advantages of the present invention will become clear during the course of the detailed description which follows, provided purely by way of a non-limiting example, with reference to the accompanying drawings in which:

- Fig. 1 shows the protection device according to the present invention in an open or disengaged arrangement;
- Fig. 2 shows a pair of protection devices according to the present invention, arranged on a coil, for example of sheet metal;
- Fig. 3 is a partial side view of a protection device according to the present invention, mounted on a coil and in contact with a raising jaw;
- Fig. 4 shows a rear view of the top part of the device, in the direction of the arrow IV of Fig. 1;
- Fig. 5 shows a front view of the bottom part of the device according to Fig. 1;
- Fig. 6 shows a middle section along the line VI-VI of Fig. 5; and
- Fig. 7 is a view sectioned along the line VII-VII of Figure 2.

[0007] With reference to the Figures, 2 denotes in its entirety a protection device for materials in coil form according to the present invention.

[0008] As can be seen in Figure 2, two devices 2 are required for effective protection of a coil (CO), but the description which follows refers to only one of these devices 2 which are identical to each other.

[0009] The device 2 comprises a first and second plate 4 and 6 which have a respective longitudinal edge zone 8, 10 of smaller thickness (Figures 2, 4, 5 and 7).

[0010] The plates 4 and 6 each have a respective plu-

ality of retaining and guiding formations 12 which are intended to be slidably engaged by the corresponding edge zone 10, 8 of the other plate, as can be seen in particular in Figure 7.

[0011] Arched transversely folded flanges 16 and 18 are formed at the opposite ends of the first plate 4 and second plate 6, respectively. Respective longitudinal corrugated bands with transverse knurlings Z are formed on the back of the first plate 4 and on the front of the second plate 6.

[0012] During use, the two plates 4, 6 of a device 2 are coupled together and the device is arranged on one edge of a roll or coil CO radially, in the direction of the thickness, as is shown in Fig. 2. The two plates 4 and 6 are then slid, towards each other, until their folded flanges 16 and 18 come into contact with the outer curved surface and inner curved surface of the roll or coil CO, respectively, forming a kind of C-shaped clamp which embraces the roll in the direction of its thickness.

[0013] In the same way, a second device 2 is arranged and clamped on the opposite edge of the roll or coil CO, in a position longitudinally aligned with that of the first device.

[0014] In the event of movement of the roll or coil CO, the gripping and raising jaws G rest against the devices 2, as is shown in Figure 3, where a jaw is shown in broken lines, preventing damage or deterioration of the said coil.

[0015] The advantages of the protection device according to the invention clearly emerge from the above description.

[0016] This device may be conveniently made of plastic and be able to be adapted to rolls or coils of varying dimensions (thicknesses) and offers an excellent protection against scratching and damage in general.

[0017] Obviously, without modifying the principle of the invention, significant modifications may be made to that described and illustrated, without however departing from the scope of protection of the said invention as defined in the accompanying claims.

Claims

1. Protection device (2) for materials in coil form (CO), in particular metal sheets in coil form (CO), comprising:

a first and a second plate (4; 6) each having:

a transversely folded flange (16; 18), retaining and guiding means (12) inside which a co-operating formation (10; 8) of the other plate (6; 4) is engageable in a longitudinally slidable manner when said plates (4; 6) are coupled together, and respective mating knurlings (Z) able to engage with those (Z) of the other plate (6; 4) selectively in a relative working position

where the plates (4; 6) extend in an at least partially juxtaposed relationship, adapted to radially embrace a coil (CO) in the direction of its thickness, with the respective folded flanges (16; 18) clamped against the outer curved surface and the inner curved surface of the coil (CO), respectively.

2. Device according to Claim 1, in which the retaining and guiding means of each plate (4; 6) comprise a plurality of longitudinally aligned retaining formations (12), essentially in the form of an L, projecting from the side of the plate (4; 6) which operationally faces the other plate (6; 4), and the corresponding co-operating formation of each plate (4; 6) is a longitudinal edge zone (10, 8) of the plate.
3. Device according to Claim 1 or 2, in which the mating means of the two plates (4; 6) comprise respective corrugated areas (Z) provided in their operationally facing surfaces or sides.
4. Device according to Claim 3, in which the corrugated areas of the two plates (4; 6) have respective knurlings (Z) directed transversely.

Patentansprüche

1. Schutzvorrichtung (2) für Materialien in Coil-Form (CO), insbesondere Metallbleche in Coil-Form (CO), mit:
 - einer ersten und einer zweiten Platte (4; 6), die jeweils aufweisen:
 - einen quer gefalteten Flansch (16; 18), einer Rückhalte- und Führungseinrichtung (12), innerhalb der eine damit zusammenwirkende Form (10; 8) der anderen Platte (6; 4) längs verschieblich in Eingriff kommen kann, wenn die Platten (4; 6) zusammengekoppelt werden, und jeweilige passenden Rändelungen (Z), die mit denjenigen (Z) der anderen Platte (6; 4) selektiv in einer relativen Funktionsposition in Eingriff kommen können, in der die Platten (4; 6) sich in einer zumindest teilweise nebeneinander liegenden Beziehung erstrecken, wobei sie dazu ausgelegt sind, ein Coil (CO) radial in seiner Dickenrichtung zu umfassen, wobei die jeweiligen gefalteten Flansche (16; 18) gegen die äußere gekrümmte Oberfläche bzw. die innere gekrümmte Oberfläche des Coils (CO) geklemmt sind.
2. Vorrichtung nach Anspruch 1, bei der die Rückhalte-

und Führungseinrichtung jeder Platte (4; 6) eine Mehrzahl längs ausgerichtete Rückhalteformen (12) im Wesentlichen in der Form eines L aufweisen, die von der Seite der Platte (4; 6) vorstehen, die im Funktionszustand der anderen Platte (6; 4) gegenüber liegt, und die entsprechende zusammenwirkende Form jeder Platte (4; 6) ein Längskantenbereich (10, 8) der Platte ist.

3. Vorrichtung nach Anspruch 1 oder 2, bei der die passenden Einrichtungen der beiden Platten (4; 6) jeweilige gewellte Flächen (Z) aufweisen, die in ihren im Funktionszustand sich gegenüberliegenden Oberflächen oder Seiten vorgesehen sind.
4. Vorrichtung nach Anspruch 3, bei der die gewellten Flächen der beiden Platten (4; 6) quer ausgerichtete jeweilige Rändelungen (Z) aufweisen.

Revendications

1. Dispositif de protection (2) pour matériaux en forme de bobine (CO), en particulier des tôles métalliques en forme de bobine (CO), comprenant :

une première et une seconde plaque (4 ; 6) ayant chacune :

une bride repliée transversalement (16 ; 18),
des moyens de retenue et de guidage (12) à l'intérieur desquels une formation coopérante (10 ; 8) de l'autre plaque (6 ; 4) est susceptible d'être engagée d'une manière capable de coulisser longitudinalement quand lesdites plaques (4 ; 6) sont couplées ensemble, et
des moletages appariés respectifs (Z) capables d'engager ceux (Z) de l'autre plaque (6 ; 4) sélectivement dans une position de travail relative dans laquelle les plaques (4 ; 6) s'étendent dans une relation au moins partiellement juxtaposée, adaptées à embrasser radialement une bobine (CO) dans la direction de son épaisseur, avec les brides repliées respectives (16 ; 18) serrées contre la surface incurvée extérieure et la surface incurvée intérieure de la bobine (CO), respectivement.

2. Dispositif selon la revendication 1, dans lequel les moyens de retenue et de guidage de chaque plaque (4 ; 6) comprennent une pluralité de formations de retenue (12) alignées longitudinalement, essentiellement sous la forme d'un L, en projection depuis le côté de la plaque (4 ; 6) qui fait fonctionnellement face à l'autre plaque (6 ; 4), et la formation coopé-

rante correspondante de chaque plaque (4 ; 6) est une zone de bordure longitudinale (10, 8) de la plaque.

3. Dispositif selon la revendication 1 ou 2, dans lequel les moyens appariés des deux plaques (4 ; 6) comprennent des zones ondulées respectives (Z) prévues dans leurs surfaces ou leurs côtés fonctionnellement face à face.
4. Dispositif selon la revendication 3, dans lequel les zones ondulées des deux plaques (4 ; 6) ont des moletages respectifs (Z) dirigés transversalement.

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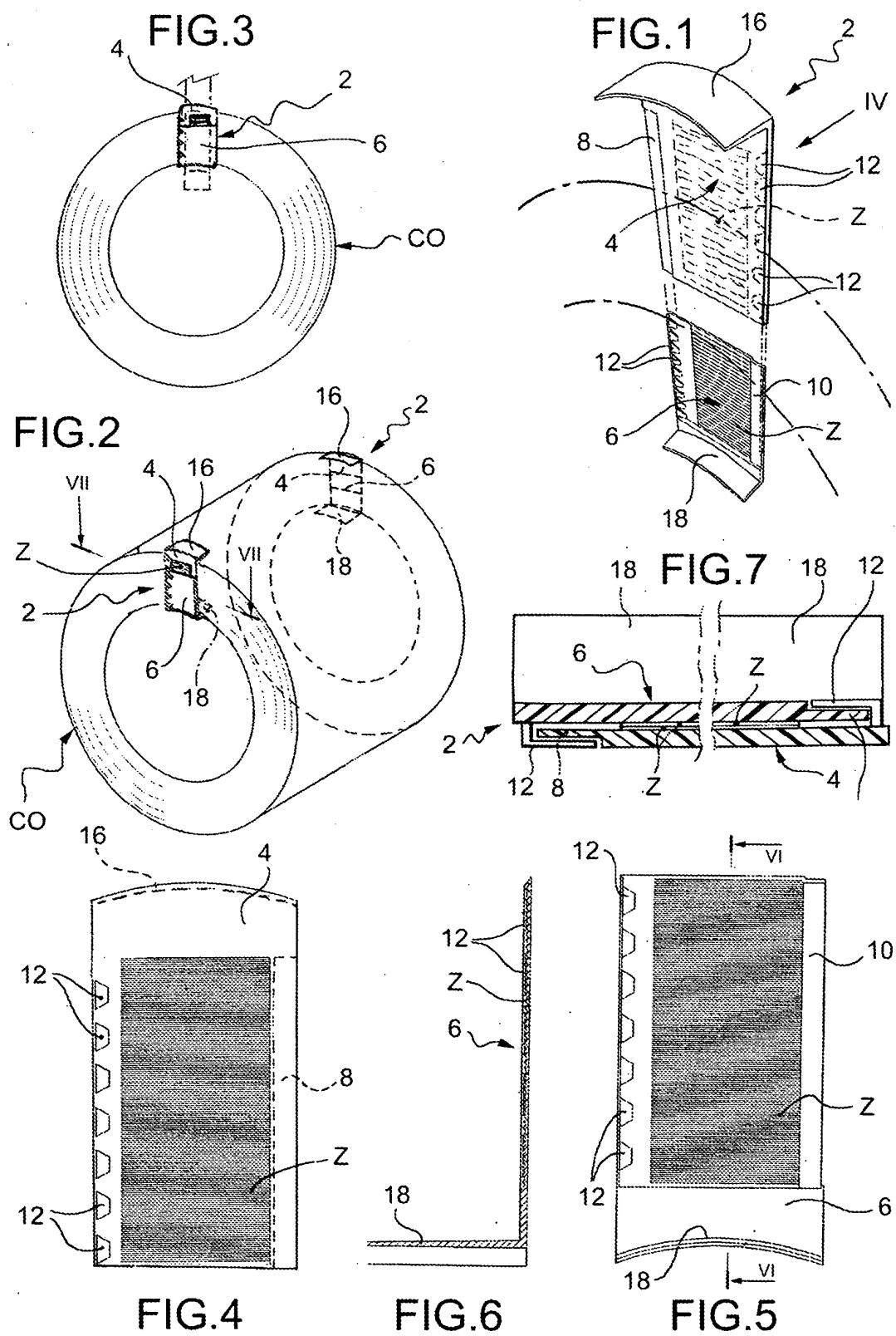
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REFERENCES CITED IN THE DESCRIPTION

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