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(72) Inventors:
• **Vaula, Dante**
10091 Alpignano (Torino) (IT)
• **Lacastellana, Rocco**
10095 Grugliasco (Torino) (IT)

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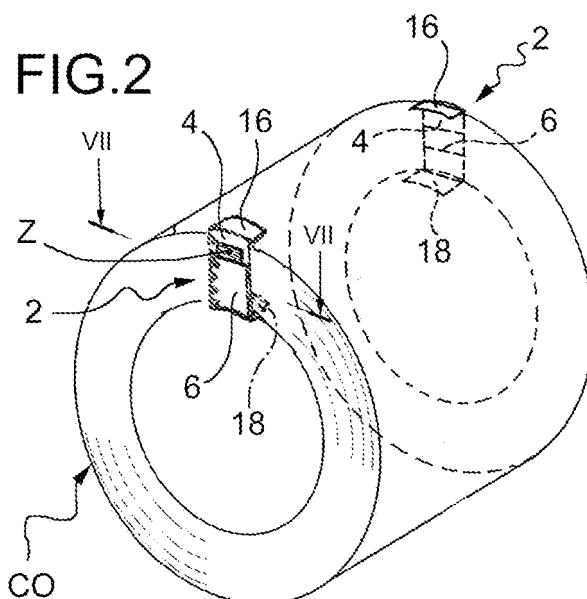
(74) Representative: **Quinterno, Giuseppe**
Jacobacci & Partners S.p.A.
Corso Emilia, 8
10152 Torino (IT)

(71) Applicant: **Propack S.p.A.**
10098 Rivoli,
(Torino) (IT)

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

(57) The protection device (2) comprises a first and a second plate (4; 6) each having a transversely folded flange (16; 18), retaining and guiding formations (12) inside which a co-operating formation (10; 8) of the other plate (6; 4) is engageable in a longitudinally slidable manner when the 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, radially embracing the 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.



Description

[0001] The present invention relates to protection devices for materials in coil form, in particular for metal sheets in coil form.

[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 plurality of retaining and guiding formations 12 which are

intended to be slidingly 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, radially embracing the 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. 5

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. 10 15
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. 20
4. Device according to Claim 3, in which the corrugated areas of the two plates (4; 6) have respective knurlings (Z) directed transversely. 25

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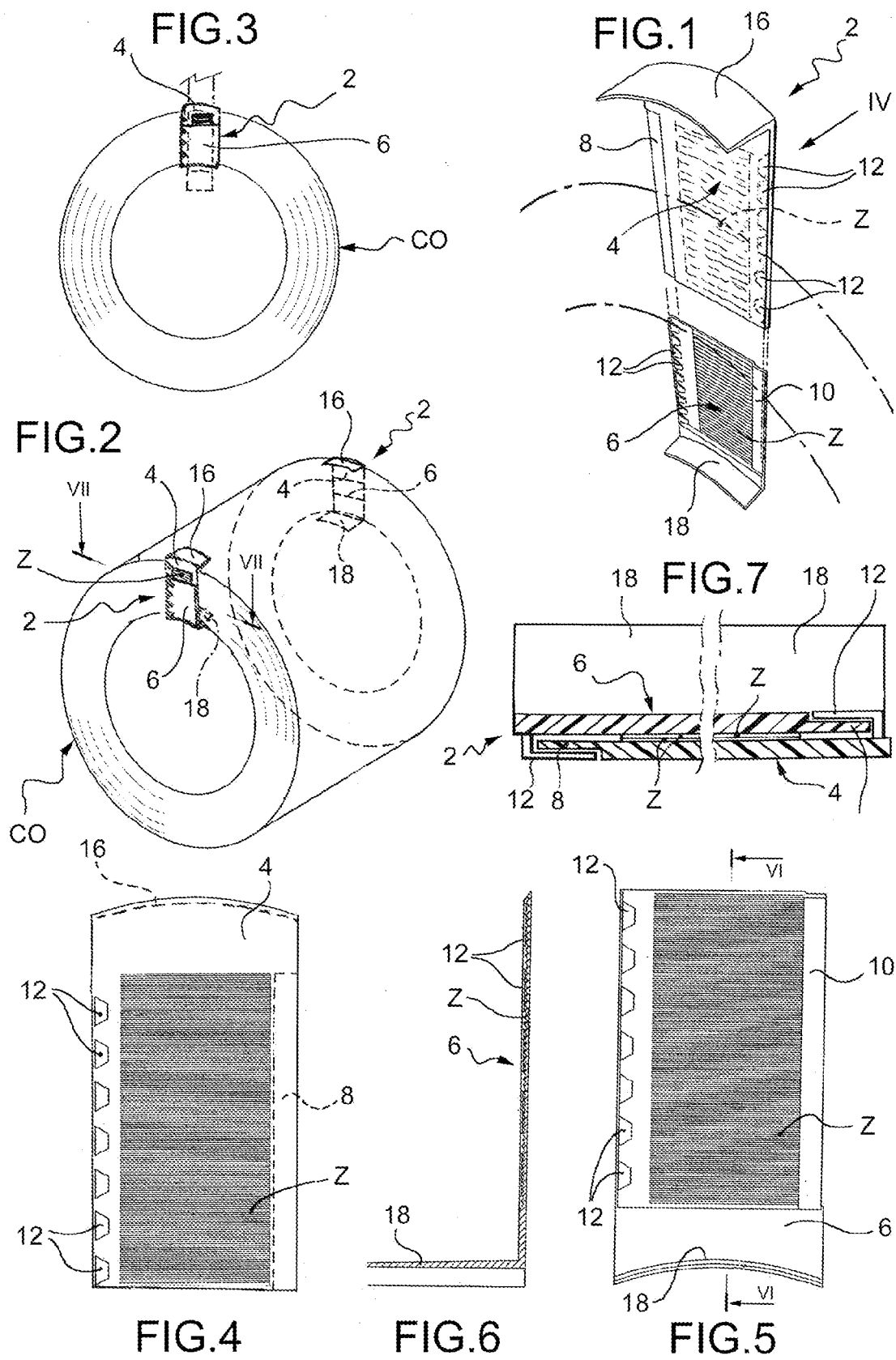
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European Patent
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EUROPEAN SEARCH REPORT

Application Number
EP 07 11 4240

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Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
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The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (IPC)
			B21C B65D B65H
Place of search		Date of completion of the search	Examiner
The Hague		13 November 2007	Barrow, Jeffrey
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

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EPO FORM 1503 03.82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
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EP 07 11 4240

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
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