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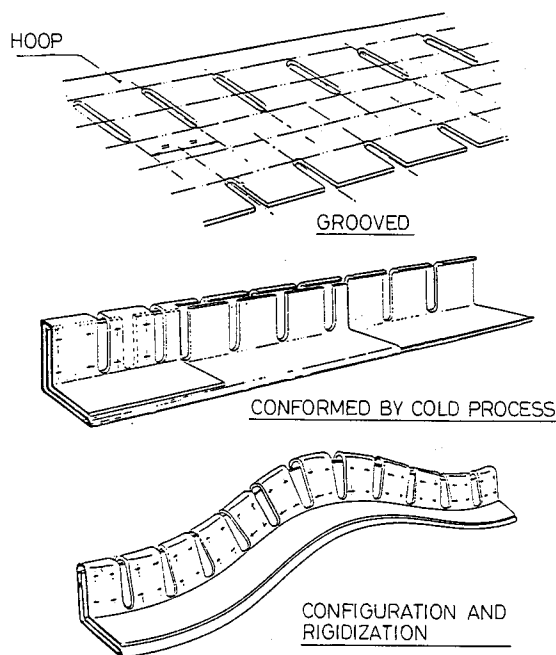
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E-28004 Madrid (ES)**(54) **Procedures for the elaboration, handling and industrial use of flexible metallic profiles.**

(57) Procedures for the elaboration, handling and industrial use of flexible metallic profiles, consisting of the mechanization of wide hoops which are died and adjusted throughout a cold process in order to obtain the T-, M-, angle-shaped profiles, and the like, with the main characteristic of being easily curved in one of their sides, without being necessary to use neither any tool nor heating processes, because the other sides of the profile do not show any resistance, as they are made of planes with grooves which relative shifts, by sliding ones over the others. The handling and use of these profiles need of a manual configuration on patterns, models or plans as designed, and the later rigidity throughout solid junctions which fix the shifted position of the grooved planes, thereby maintaining the requested curve.

**FIG.1****EP 0 644 003 A2**

**SUMMARY:**

Procedures for the elaboration, handling and industrial use of flexible metallic profiles, consisting of the mechanization of wide hoops which are died and adjusted throughout a cold process in order to obtain the T-, M-, angle-shaped profiles, and the like, with the main characteristic of being easily curved in one of their sides, without being necessary to use neither any tool nor heating processes, because the other sides of the profile do not show any resistance, as they are made of planes with grooves which relative shifts, by sliding ones over the others. The handling and use of these profiles need of a manual configuration on patterns, models or plans as designed, and the later rigidity throughout solid junctions which fix the shifted position of the grooved planes, thereby maintaining the requested curve.

a) Invention patent for: Procedures for the elaboration, handling and industrial use of flexible metallic profiles.

b) The technical sector which the present patent is referred to, is the production of metallic profiles of industrial application.

c) This is an industrial sector with a great activity since many years ago, but with techniques which have not experimented any relevant technological innovations. This could be because the projects which structural elements are metallic profiles, the design has traditionally avoided the previous expensive adjustment of the conventional commercial materials, using cuttings and junctions of straight pieces in order to get closer to a theoretical request of a continuous curve. Within some projects this approach is not possible when a curve with a strict configuration and a perfect surface finishing is necessary.

d) In order to address all these problems and to allow an easy curving of the metallic profiles, overcoming all the above mentioned difficulties, the present privilege of Invention Patent on new procedures for the elaboration, handling and industrial use of flexible metallic profiles is requested, mainly consisting of the following procedures:

- . We start from metallic hoops with a wide and plane shape, which allow to be conformed with a cold process. The width, thickness and characteristics of the metallic plane which are processed are the necessary ones for the profile requested in each case.
- . The mechanization consists of a continuous stamping of repeated grooves using the specific tools for the elaboration of a concrete profile. The consecutive operations are progressive conformings within

the outlining band and some solderings if necessary.

- . The elaborated product is cut off in long transportable pieces or is rolled up thanks to the foreseen flexibility.

- . The condition of flexible profile comes from the disposition, shape and size of the pre-stamped grooves. The profile's side or wing which is set up with planes without any grooves, acts as the hoop whose wide side makes the curving process, severely and easily, modifying their position, by sliding shifts of the planes which have the grooves and are the sides or remaining wings of the elaborated profile.

- . The application for the construction of structures made of profiles with curved configurations makes their handling considerably simpler, as they get adapted without any effort to the shapes of the design. The configuration obtained is rigidized by means of the solid junction between the planes which, because of being grooved, have been shifted from the position when the profile is kept straight or when the profile is indeterminately curved. The solid junction is carried out in a conventional way with screws, rivets, solders, etc.

- e) For a better understanding of the procedures mentioned, two sheets with drawings are enclosed, which represent with clarifying perspectives the different steps for the elaboration of two kinds of profiles: one angle with equal sides and one "T". In the drawings we can distinguish:

FIG. 1 top.- Representation of a piece from the grooved metallic hoop for the elaboration of an angle with equal sides.

FIG. 1 middle.- Representation in cut perspective of the conformed angle in the outlined band.

FIG. 1 bottom.- Representation of the angle configuration, according to the pattern, being rigidized by soldering in points.

FIG. 2 top.- Representation of a piece from the stamped metallic hoop for the elaboration of a "T" profile.

FIG. 2 middle.- Representation in cut perspective of the "T" profile, conformed in the outlined band.

FIG. 2 bottom.- Representation of a "T" profile configuration according to the pattern, with different options for the definitive rigidity.

- f) A detailed description of the invention has been sufficiently clarified in paragraph d).

- g) The invention is susceptible of industrial application, as can be deduced from description d) and in all kinds of structures, for conservatories,

domes, hanging coverings, hedges, blinds, coachworks, etc.

Once the previous description has been made, it is necessary to add that the realization details of the exposed idea can vary, without changing the invention essence, which is given up from the previous paragraphs and is claimed in the following note.

## Claims

1. Procedure for the elaboration, handling and industrial use of flexible metallic profiles, characterized in that these procedures are a sequence of continuous mechanizations over bands of metallic grooves, with a width, thickness and features specific for the elaborated profile. These features are subject to successive operations of puncture of repeated grooved shapes and to progressive foldings of conformation by cold process in the outlined machines, so that the final product easily respond to the requests of a flexible configuration foreseen in the invention's declaration and which is a consequence of the disposition of stamped grooves, making possible to open or close the grooved spaces, thus getting the shifts between the two or more planes which are part of the mentioned sides or wings. This makes possible that the profile's side, not necessarily stamped, be curved by means of patterns, models or outlines according to the definitive configuration.
2. Procedures for the elaboration, handling and industrial use of flexible metallic profiles, characterized by the previous claim and further characterized in that the profile obtained in continuous is cut off in long transportable pieces or is supplied in rolls to the manufacturer of structures, thus he can work with it without length limitations.
3. Procedures for the elaboration, handling and industrial use of flexible metallic profiles, characterized by the previous claims and further characterized in that the profile obtained is rigidized by means of conventional systems for solid junctions between the grooved planes once it has been definitively curved.

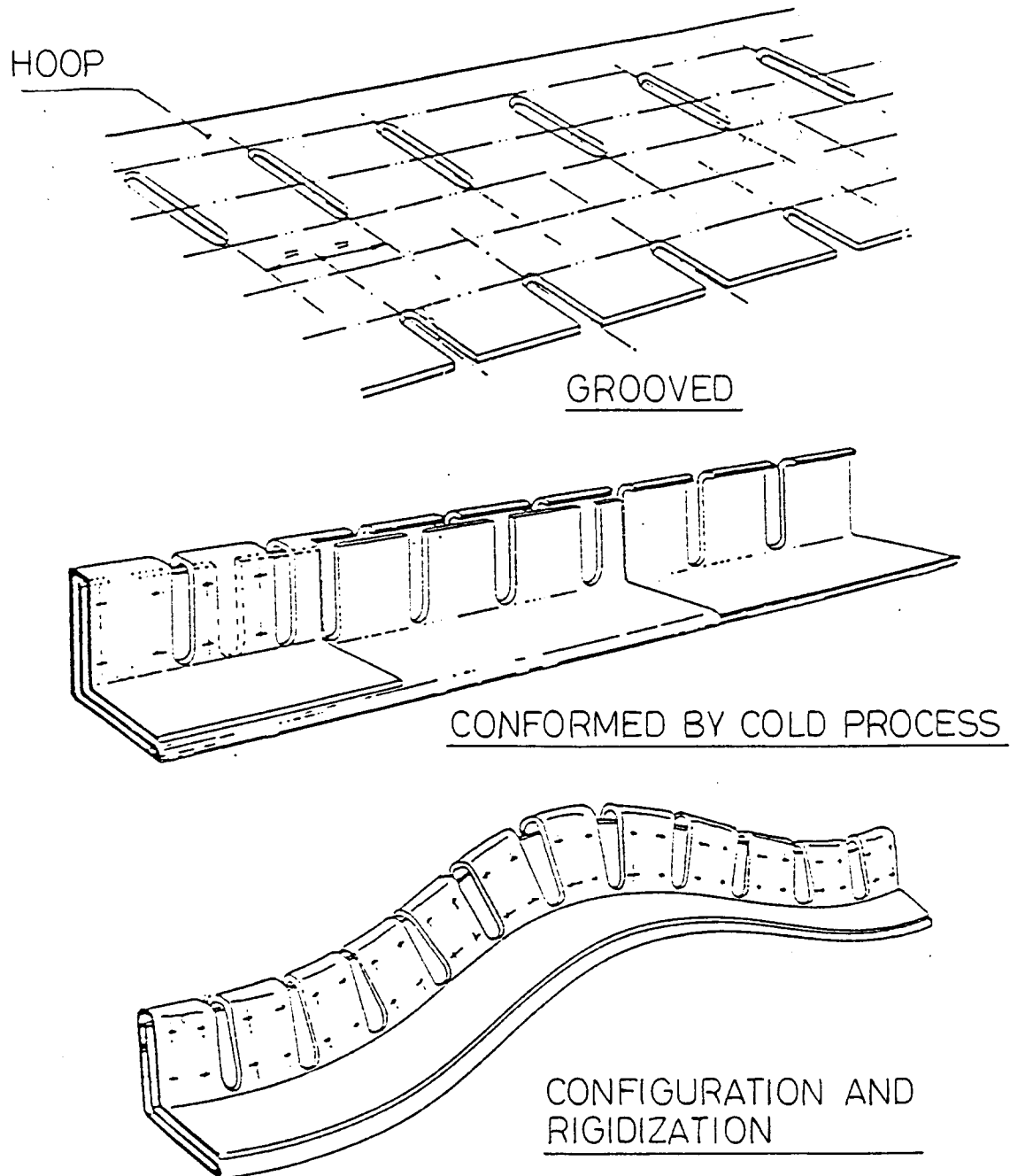


FIG.1

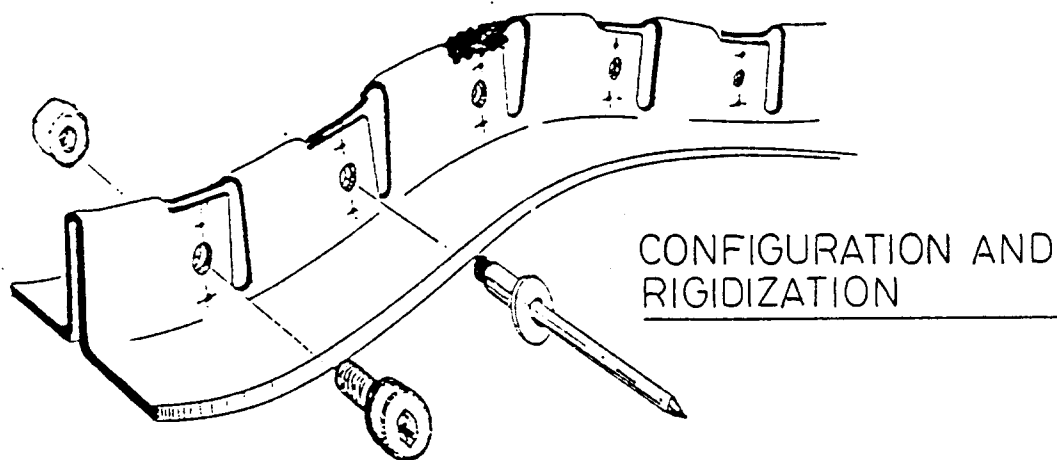
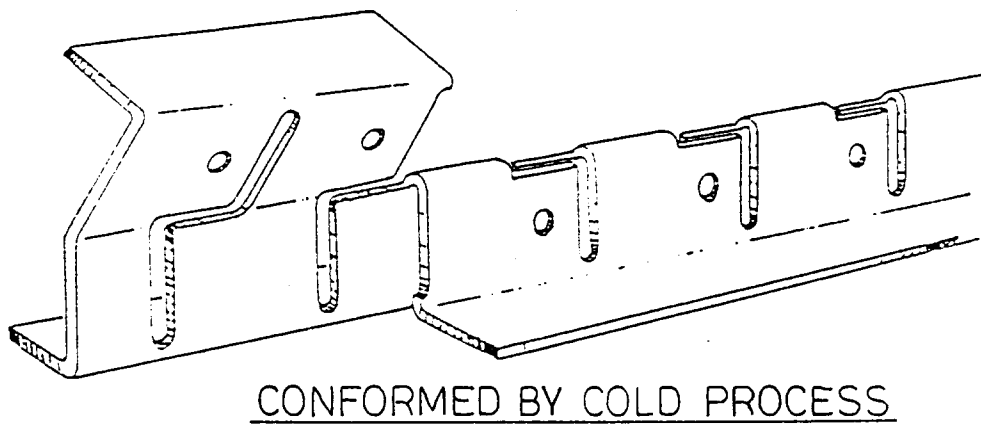
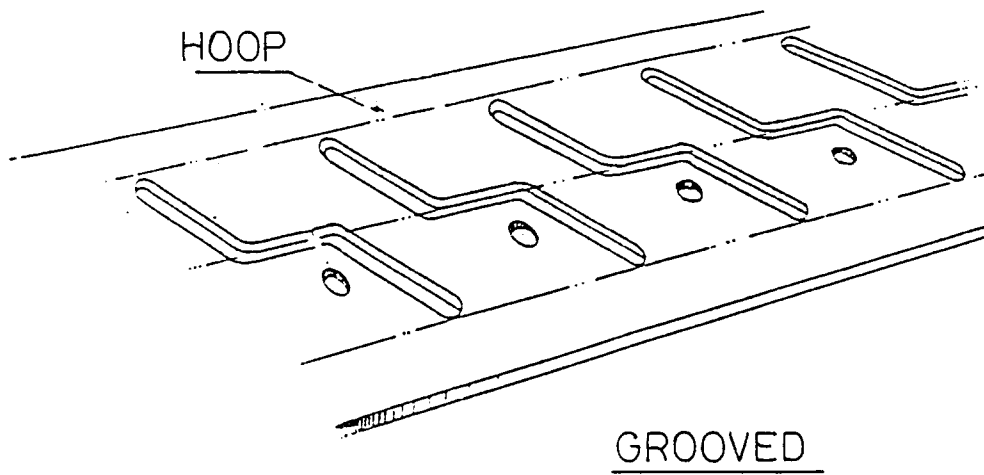


FIG. 2