

Description

The present invention relates to a slide as defined in the preamble of claim 1.

In this context, 'slide' refers to an artificial miniature slope built as a play structure for children. Usually such slides are relatively complex in structure, containing a large number of different parts, which is why the slide is expensive and is not suited for industrial serial production. Moreover, they incorporate only very limited possibilities of variation.

A prior-art slide is presented in specification GB 2035810, which comprises a downward sloping slide body formed from sheet metal and a frame supported by the ground and comprising two side elements attached to the edges of the slide body. The downward sloping slide element of the slide presented in specification GB 20345810 is formed from sheet metal by making longitudinal reinforcing bends at the edges to give it a trough-like shape. The upper end of the slide is provided with transverse bends to allow the slide to be so bent that a planar starting surface is formed at its upper end. However, the transverse bends at the upper end are not intended to be part of the slide surface, but to prevent sliding. A problem with this prior-art slide is that the trough-like sheet metal, in which the reinforcing edge flanges have been formed by bending the edges of the slide surface, cannot be bent into a desired shape so as to produce different slide profiles.

The object of the present invention is to present a new type of slide which eliminates the drawbacks mentioned above.

A specific object of the invention is to present a slide of a simple construction suited for industrial serial production that contains a minimal number of different parts.

A further object of the invention is to present a slide of a modular construction allowing it to be fitted in a wide variety of environments.

The slide of the invention is characterized by what is presented in claim 1.

According to the invention, the slide comprises a slide surface element formed from a single continuous sheet metal piece reinforced with deflections laid in a direction transverse to the sliding direction substantially over the entire area of the slide surface. Bent into a desired curved shape, the slide surface element is attached by its edges to side elements.

The slide surface element with transverse deflections can be bent into a desired shape in the sliding direction, e.g. into curved shapes, yet it is sufficiently rigid in a direction transverse to the sliding direction, so it is capable of carrying the weight of the slider substantially without bending and need not be provided with any other reinforcements. Therefore, the slide is simple in construction and cheap to manufacture.

In an embodiment of the slide, the slide surface element has a stepped cross-sectional form in the sliding

direction. By profiling the sheet metal piece with stepped transverse deflections, it is made rigid enough so that it can be attached to plate-like side elements by its edges only. By arranging the steps densely enough along the length of the sliding surface, steps of a relatively small height can be used, so that the slide surface element will have good sliding properties in spite of the stepped structure and the stepped surface will not produce unpleasant sensations in the slider.

In an embodiment of the slide, the slide surface element comprises a planar first flange part, a planar second flange part and between these an inclined third flange part, which is narrower than the first and second flange parts and at an angle to them, so that the first, third and second flange parts occur repeatedly in the slide surface element in successive order, and in an element mounted on a slide the first flange part relative to the sliding direction is located at a higher level than the second flange part.

In an embodiment of the slide, the slide surface element has a shape with a downward curvature in the sliding direction. A slide surface element with a downward curvature can be placed at the lower end of the slide.

In an embodiment of the slide, the slide surface element is of a rectangular form; and the opposite slide surface element edges parallel to the sliding direction are provided with a number of mounting elements for attachment of the slide surface element to the side elements.

In an embodiment of the slide, the mounting element comprises a mounting flange provided with a first mounting hole.

In an embodiment of the slide, the side element comprises a number of second mounting holes placed at a distance from each other at locations corresponding to the first mounting holes of the slide surface element to permit the slide surface element and the side element to be attached to each other with a bolted joint.

In an embodiment of the slide, the side element comprises a guide groove designed to receive the mounting flanges of the slide surface element into the guide groove.

In an embodiment of the slide, the slide surface element and the side elements attached to it form a slide element; and the slide comprises several slide elements rigidly attached to each other in sequence by means of joint elements to form a slide of a desired length. Such a joint element is e.g. a plate-like piece attached with screw connections to successive side elements.

In the following, the invention is described in detail by the aid of a few examples of its embodiments by referring to the attached drawing, in which

Fig. 1 presents an axonometric view of a first embodiment of the slide of the invention, seen obliquely from above,

Fig. 2 presents a magnified detail of Fig. 1,

Fig. 3 presents section III-III of Fig. 2,

Fig. 4 presents the slide surface element in Fig. 1-3 in side view,

Fig. 5 presents the slide surface element of Fig. 4 as seen from the direction V-V,

Fig. 6 presents detail A of Fig. 4,

Fig. 7 presents section VII-VII of Fig. 6,

Fig. 8 presents detail B of Fig. 4,

Fig. 9 presents a side view of a curved slide surface element placed as the last element at the lower end of the slide body,

Fig. 10 presents another embodiment of the slide of the invention in side view.

Fig. 1 shows a slide comprising a downward sloping slide body 1 and a frame 2 supported by the ground (not shown). The slide body 1 is attached to the frame 2. The slide body 1 comprises a slide surface element 4, 5 formed from a single continuous sheet metal piece reinforced with deflections 3 transverse to the sliding direction. The frame 2 comprises two plate-like side elements 6, which are attached to the slide surface element 4, 5, on either side of it. The slide surface element 4 and the side elements 6 attached to it form a slide element 15, which is a rigid, self-supporting assembly.

Fig. 2 shows such a slide 15, which in its simplest form consists of only three parts. In the example in Fig. 2, in which the slide element is the topmost element of a slide, it is also provided with an auxiliary part X. Slide elements 15 can be attached to each other in sequence. The slide in Fig. 1 comprises two slide elements 15 attached to each other. Successive slide elements 15 are rigidly attached to each other by means of joint elements 16, which are plate-like pieces. To build a slide of a desired length, a desired number of slide elements 15 can be attached together. For example, Fig. 10 presents a slide comprising three successive slide elements 15.

As shown in Fig. 3, the side element 6 has a curved guide groove 14 of a desired shape that determines the shape of the slide surface element because the slide surface element 4, being provided with transverse deflections, can be easily bent into curved shapes in a plane along the sliding direction. The opposite edges of the rectangular slide surface element 4 parallel to the sliding direction are provided with a number of mounting flanges 12 with a mounting hole 11. The guide groove 14 is fitted to receive the mounting flanges into it. The guide groove is provided with a number of mounting holes 13 placed at even distances from each other at locations corresponding to the first mounting holes 11 of the slide surface element 4 to permit the slide surface element and the side element to be attached to each other with a bolted joint.

Figures 4 - 8 present a detailed illustration of a preferred slide surface element 4. Using a suitable sheet metal shaping technique, a sheet metal piece preferably made of stainless steel, having a thickness of about 1.25 mm, is profiled into a stepped shape as shown in Fig. 6 and 8 presenting details A and B. In the slide sur-

face element 4, planar surfaces 7 and 8 with a narrower step 9 between occur repeatedly in the slide surface element in successive order. The height of the step 9 is e.g. about 4 mm. Fig. 6-8 also show mounting flanges 12 with an elongated mounting hole 11 on the edges of the slide surface element parallel to the sliding direction. As shown in Fig. 8, the mounting flange is bent downward in a direction perpendicular to the plane of the slide surface element 4. As is further shown in Fig. 6 and 8, each end of the slide surface element is provided with downward bent flanges 18, which are preferably provided with mounting holes 19 aligned with each other so that similar slide surface elements 4 can be attached to each other.

Fig. 9 shows a slide surface element 5 with a curved profile, designed to be placed at the lower end of a slide to form the last element of it. The sheet is bent downward in a plane along the sliding direction. This slide surface element 5 is also provided with mounting elements 10 like those described in connection with Fig. 6-8, comprising mounting flanges 12 with elongated holes 11.

The invention is not restricted to the examples of its embodiments described above, but many variations are possible within the framework of the inventive idea defined by the claims.

Claims

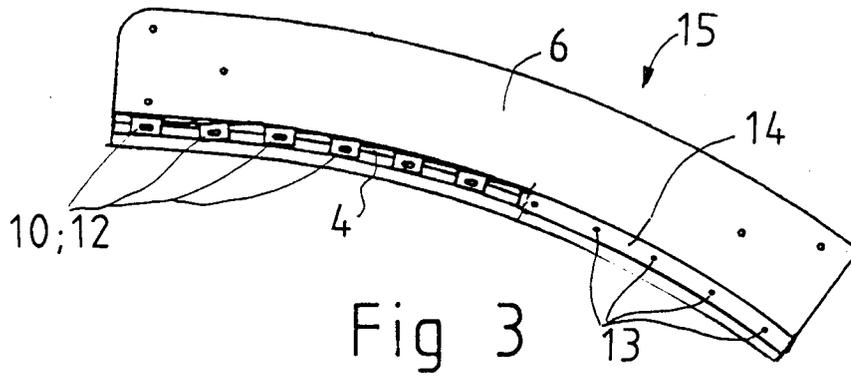
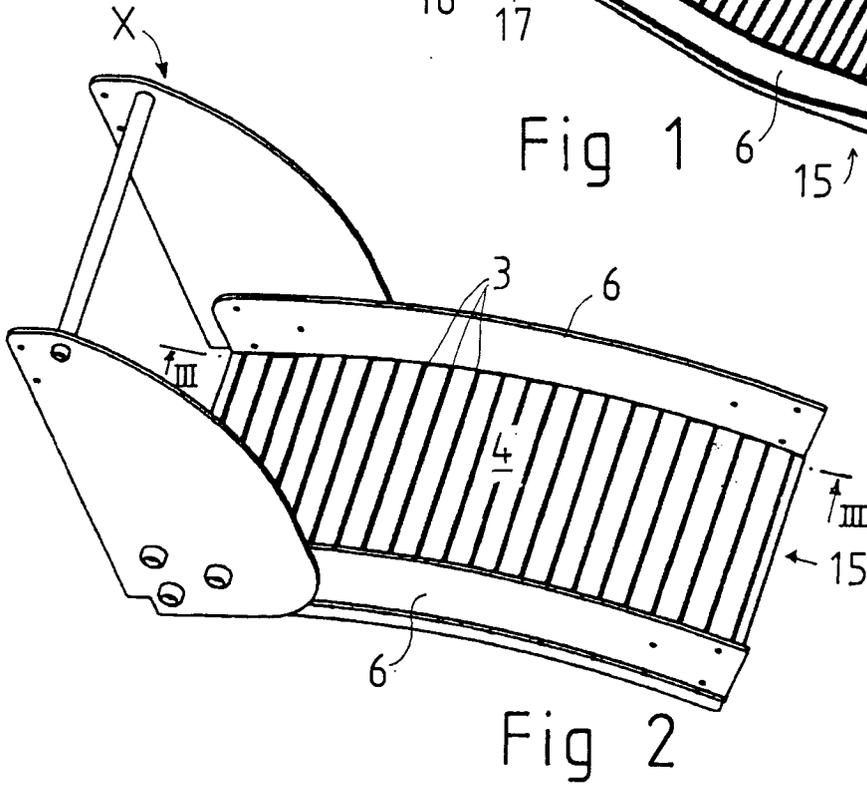
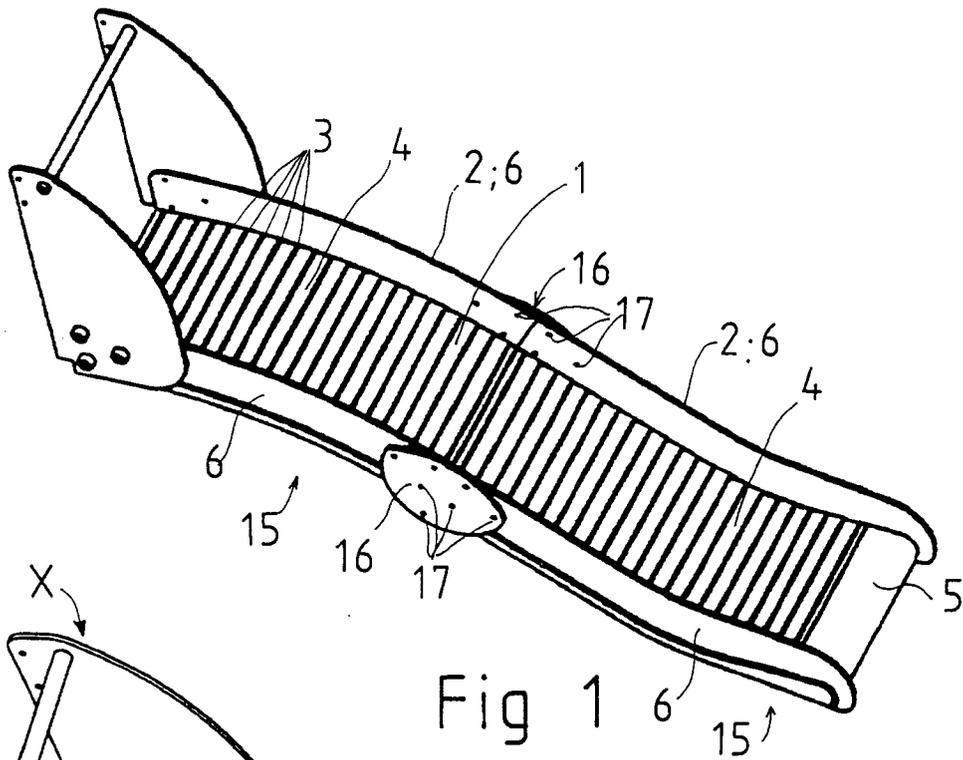
1. Slide comprising a downward sloping slide body (1) formed from sheet metal and a frame (2) supported by the ground, said frame comprising two side elements (6) attached to the slide body on either side of it, **characterized** in that the slide body (1) comprises a slide surface element (4, 5) formed from a single continuous sheet metal piece reinforced with deflections (3) laid in a direction transverse to the sliding direction substantially over entire area of the slide surface, which slide surface element is bent into a curved shape and attached by its edges to the side elements (6).
2. Slide as defined in claim 1, **characterized** in that the slide surface element (4) has a stepped cross-sectional form as seen in a section along the sliding direction.
3. Slide as defined in claim 2, **characterized** in that the slide surface element (4) comprises a planar first flange part (7), a planar second flange part (8) and between these an inclined third flange part (9) which is narrower than the first and second flange parts and at an angle to them, so that the first, third and second flange parts occur repeatedly in the slide surface element in successive order, and in an element (4) mounted on a slide the first flange part relative to the sliding direction is located at a higher level than the second flange part.

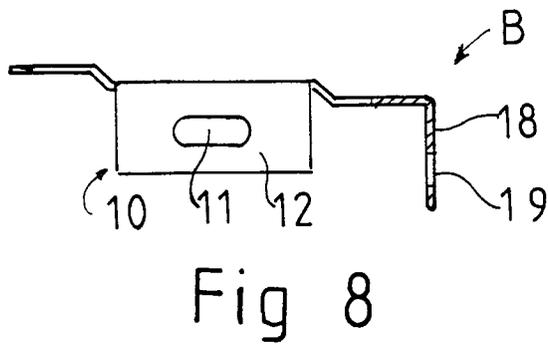
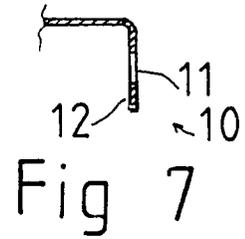
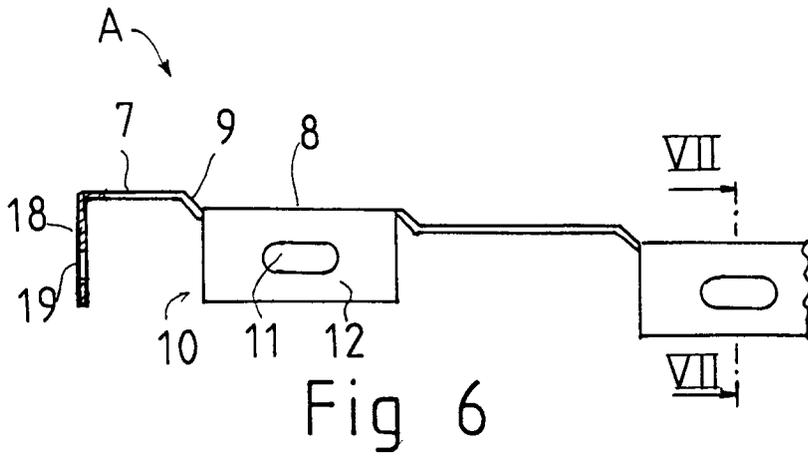
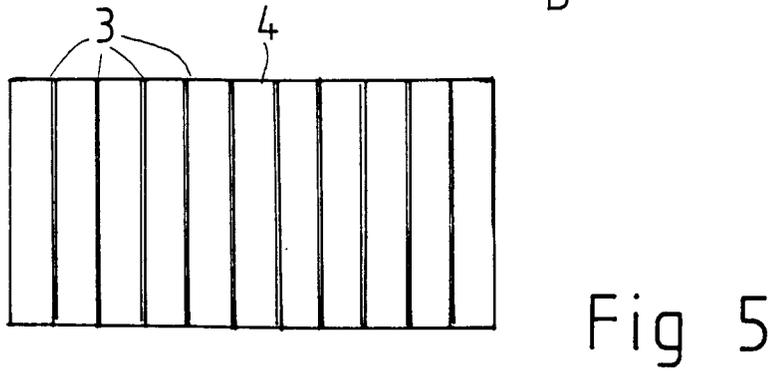
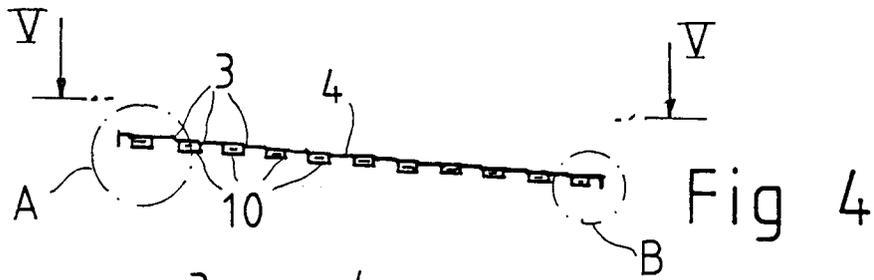
4. Slide as defined in any one of claims 1 - 3, **characterized** in that the slide surface element (4, 5) has a shape with a downward curvature in the sliding direction. 5
5. Slide as defined in any one of claims 1 - 4, **characterized** in that the slide surface element (4) has a rectangular form; and that the slide surface element (4) comprises a number of mounting elements (10) formed on its opposite edges parallel to the sliding direction to allow the slide surface element to be attached to the side elements (6). 10
6. Slide as defined in claim 5, **characterized** in that the mounting element (10) comprises a mounting flange (12) provided with a first mounting hole (11). 15
7. Slide as defined in any one of claims 1 - 7, **characterized** in that the side element (6) comprises a number of second mounting holes (13) disposed at a distance from each other at locations corresponding to the first mounting holes (11) of the slide surface element to permit the slide surface element and side element to be attached to each other with a bolted joint. 20
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8. Slide as defined in claim 6 or 7, **characterized** in that the side element (6) comprises a guide groove (14) designed to receive the mounting flanges (12) of the slide surface element into the guide groove. 30
9. Slide as defined in any one of claims 1 - 8, **characterized** in that the slide surface element (4) and the side elements (6) attached to it form a slide element (15); and that the slide comprises several slide elements (15) rigidly attached to each other in sequence by means of joint elements (16) to form a slide of a desired length. 35
10. Slide as defined in claim 9, **characterized** in that the joint element (16) is a plate attached with a bolted joint (17) to successive side elements (6). 40

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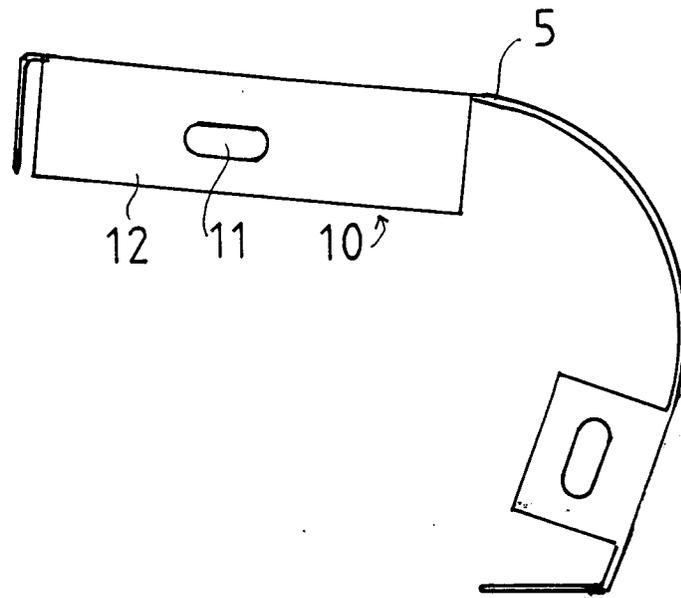


Fig 9

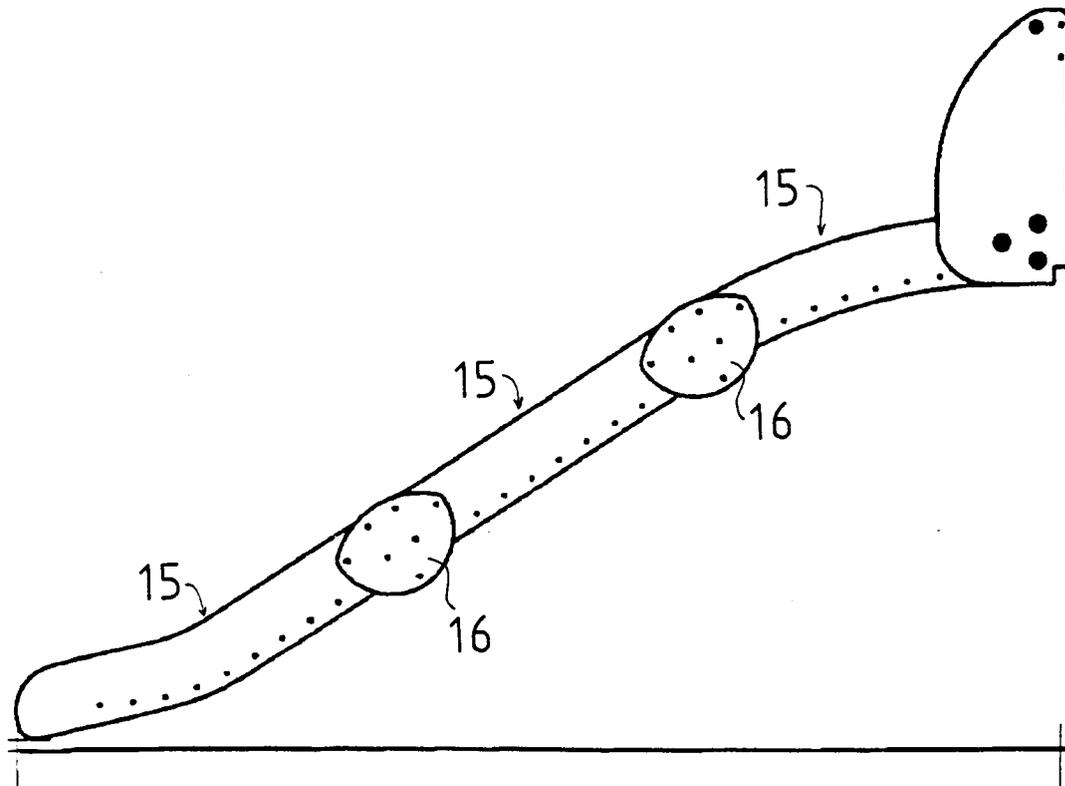


Fig 10



European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 97 66 0054

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
A, D	GB 2 035 810 A (LEW-WAYS LIMITED CONDUIT WORKS) * the whole document *	1	A63G21/00
A	WO 86 04827 A (HUSEVAG) * page 4, line 18 - line 28; figures 1,3 *	1	
			TECHNICAL FIELDS SEARCHED (Int.Cl.6)
			A63G
The present search report has been drawn up for all claims			
Place of search		Date of completion of the search	Examiner
THE HAGUE		30 September 1997	Godot, T
<p>CATEGORY OF CITED DOCUMENTS</p> <p>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</p> <p>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</p> <p>& : member of the same patent family, corresponding document</p>			

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