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Solheim

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(54) **SITTING ARRANGEMENT**

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5/613, 618, 619

See application file for complete search history.

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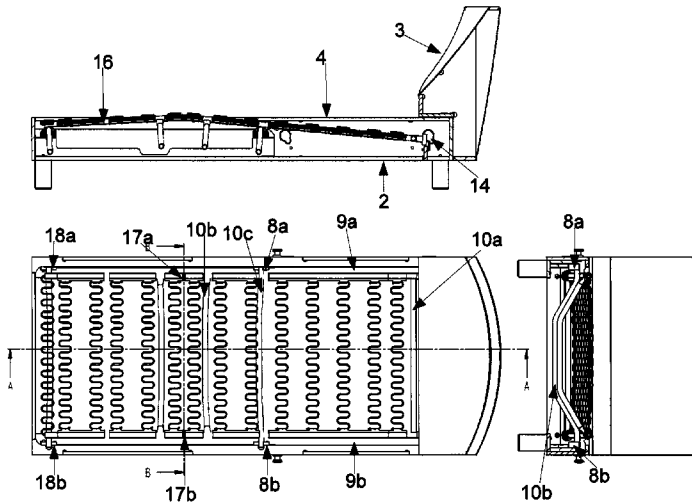
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(57) **ABSTRACT**

Chaise longue comprising a sofa frame (2), seat part (4) and back rest (3). The seat part (4) comprises side bars (9a, b), cross bars (10a, b) and seat springs (7). The seat part (4) is rotatably connected to the sofa frame (2) by means of mounting devices (8a, b) below the sitting surface of the seat part. One or more balance springs (14) are arranged between the seat part (4) and the sofa frame (2). A shutter or flap (16) is rotatably mounted to the seat part with pivotable joints (17a, b). The flap is furthermore rotatably connected to the sofa frame in point at the opposite end from the joints.

6 Claims, 4 Drawing Sheets



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Fig. 1

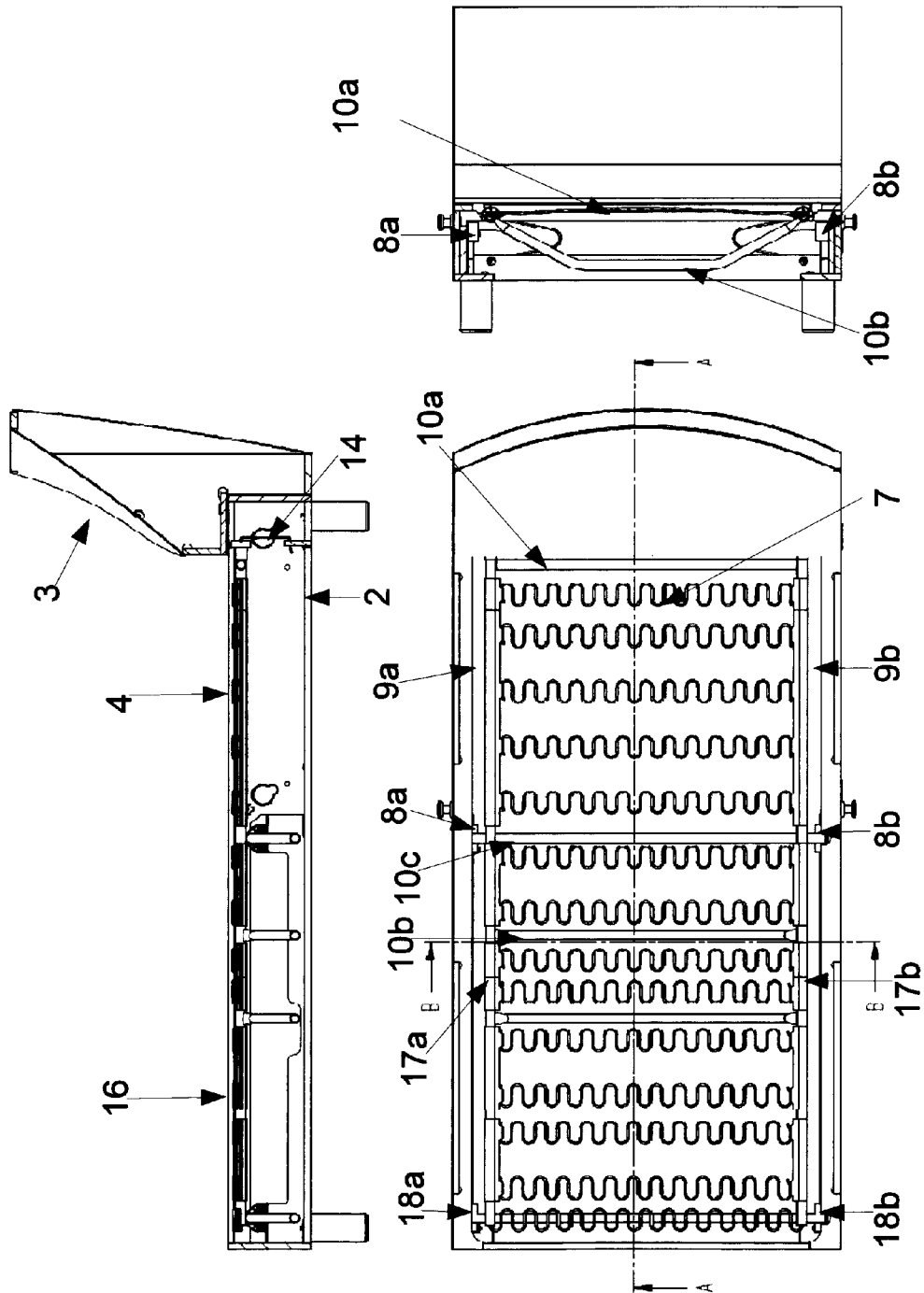
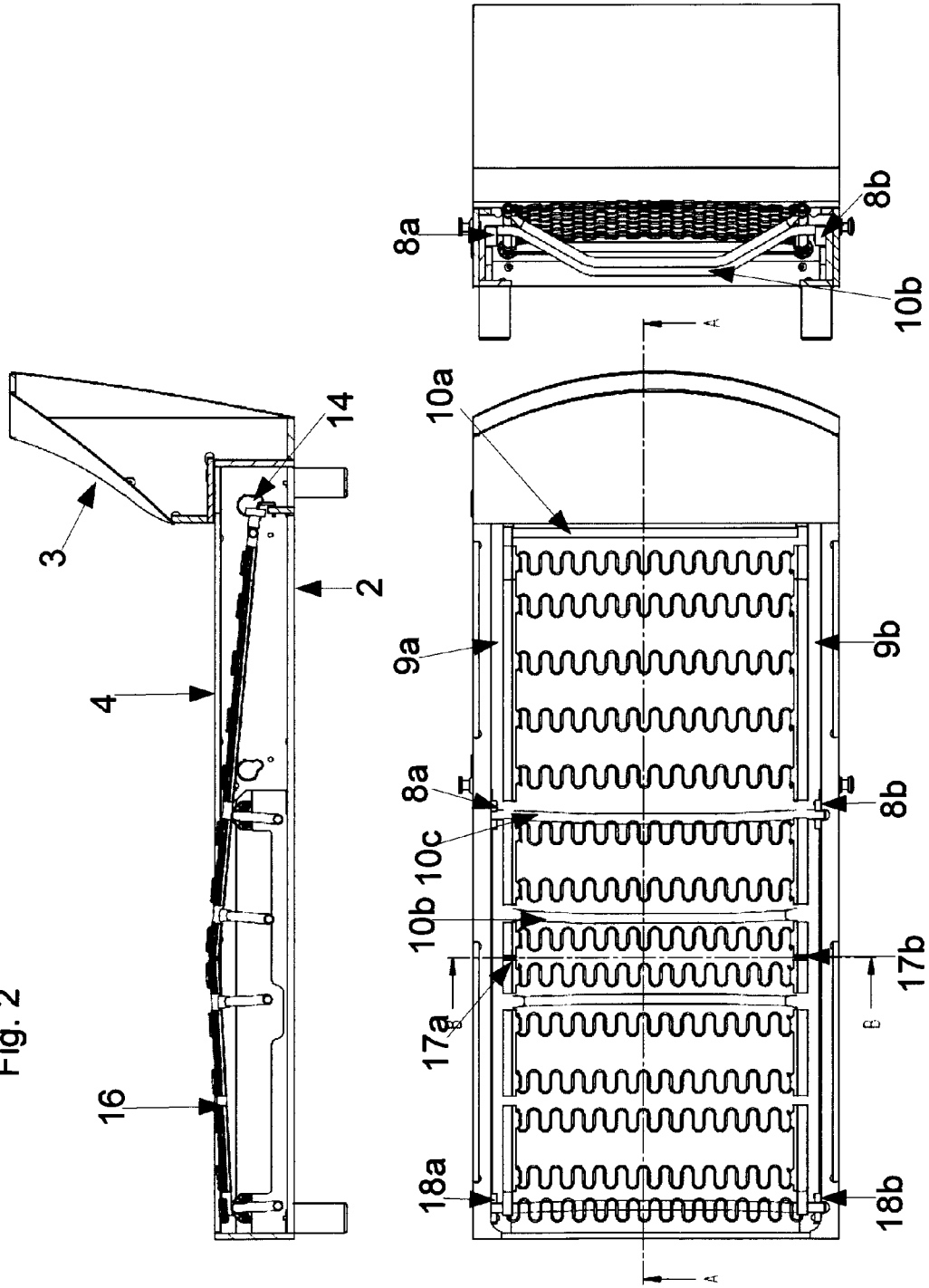


Fig. 2



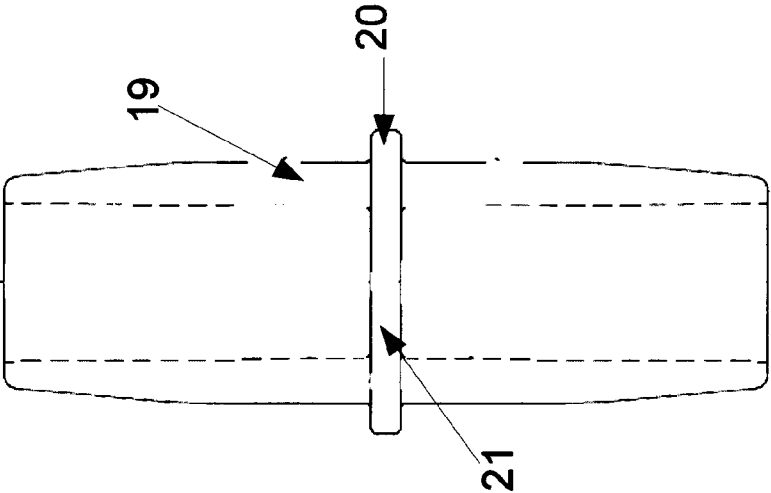


Fig. 3b

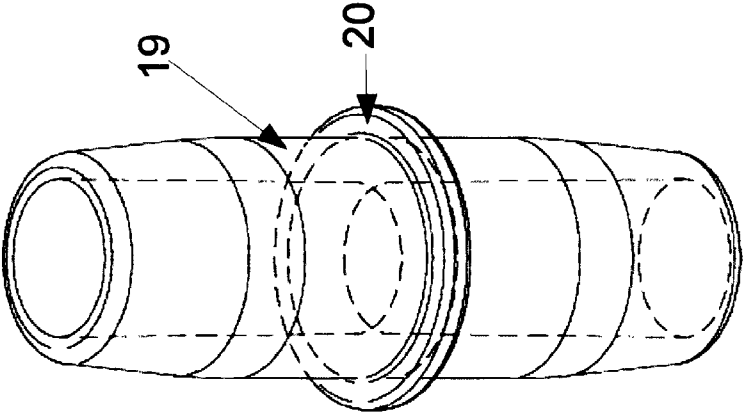


Fig. 3a

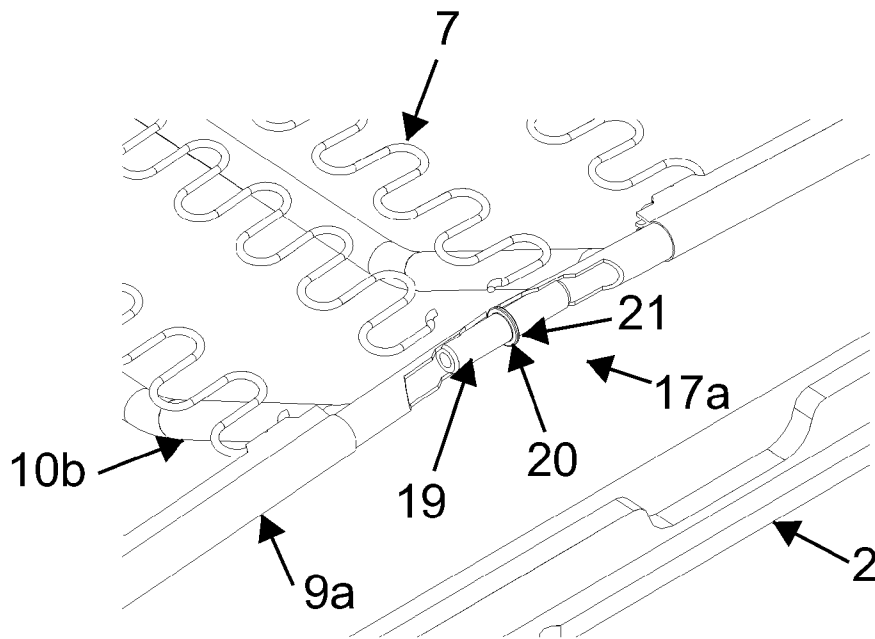


Fig. 4

SITTING ARRANGEMENT

The present invention relates to a chaise longue, also called longseat, and to an elastic joint for the use in it.

From U.S. Pat. No. 3,974,630, it is known an adjustable base for the use in a bed, sofa or chaise longue comprising a back rest **5** being hinged to a seat **2** that is hinged to a foot part or shutter **3**. The back rest is hinged in a rotatable joint at the lower part of this, just above the hinging to the seat. Likewise, the seat is hinged to a rotatable joint, where there also is a slide to receive longitudinal movement in relation to the backrest. For the same reason, the lower part of the shuttle is attached to a slide guide. The angle between the back rest and the seat is adjustable in preset levels. The angle is locked in each level.

It is an object of the present invention to provide a chaise longue being easy to readjust during use by redistribution of body mass. Furthermore, it is an object to provide an adjustable chaise longue having a basic and robust design without too many movable parts. The structure comprises a hinged joint being easy to mount and maintain. There will be little wear of the joint and it will consequently have a long durability. Due to the relatively simple design, the production costs will also be lower.

This is obtained by a chaise longue according to the attached claim **1**, and a flexible joint according to claim **4**.

The sitting arrangement will be further described by means of embodiments in the attached drawings where:

FIG. **1** shows a chaise longue according to the invention, in plane, longitudinal section and cross section,

FIG. **2** shows the chaise longue with the seat in a second position,

FIG. **3** shows a flexible joint being a part of the chaise longue, in perspective *a* and cross section *b*,

FIG. **4** shows the hinge point of the chaise longue with the elastic coupling.

FIG. **1** shows a chaise longue according to the invention. It comprises a fixed back rest **3**, a seat part **4** with a bottom frame **6**, seat springs **7** and rotatable mounting devices **8a, b**. The seat frame or bottom frame **6** of the embodiment has the shape of a quadrangle with four sides forming two mainly straight parallel side bars **9a, 9b** being arranged on the sides being parallel with the longitudinal direction of the chaise longue, and two parallel cross bars **10a, 10b** along the two remaining sides of the quadrangle. The seat springs **7** are stretched over the bottom frame **6** between the side bars **9a, 9b** thereby forming a resilient sitting plane, whereon a cushion or the like can be placed. The sitting part is attached to the frame of the sofa **2** by means of rotatable mounting devices **8a, b**. More precisely, the bottom frame comprises a third cross bar **10c** being prolonged over the periphery of the bottom frame, and where the ends of the cross bar is suspended in mounting devices **8a, b** of the sofa frame. The mounting devices are in the form of bearing blocks that can be made in any suitable material, such as wood or metal, but which are preferably made in a plastic material, like here. The third cross bar forms a further reinforcing element, but otherwise the suspension arrangement can be implemented in a simpler way, for example by welding short pipe sockets to the frame, which in return anchor the mounting devices to the sofa frame.

In the shown embodiment, the mounting devices **8a, b** are attached asymmetrically to the frame in relation to a centre axis through the seat part **4**, so that the fulcrum joint will be between the knee and the hip of a user sitting in an ordinary manner with parallel legs and the back resting towards the back rest of the chaise longue. The mounting device can as an example be arranged $\frac{1}{3}$ of the distance from the front edge of

the seat. It is an intention that the mounting device **8** is arranged in such a way that it performs a self-balancing tilt. The mounting device is preferably not provided with a lock or adjustable brake, as the tilt is confined by the mounting mechanism and the placement of this, in combination with balance springs **14**. However, the chaise longue can be provided with some sort of final stops limiting the swing of the seat part.

The chaise longue is provided with balance springs **14**. In the shown figures, the balance springs are arranged between the bottom frame and the sofa frame below the back rest. However, the balance springs **14** can be arranged along the side panels of the sofa frame **2** instead of in the side of the sofa frame below the back rest. A skilled person that will construct a sitting arrangement according to the invention, are free to arrange spring devices where it is the most appropriate to obtain a desired balance in the seat part and sufficient resistance against tilting in order to make the tilting of the seat part comfortable for the user. There can also be used other kinds of spring devices, such as flat coil springs, leaf springs, rubber band devices or arrangements, torsional springs or others. In stead of arranging these at the end parts of the cross bars, the springs can be arranged in relation to the rotatable mounting arrangement between the seat part and the bottom frame.

At the front edge of the seat part a shutter or flap **16** is hinged in hinge points **17a, b**. The flap is also rotatably attached to the sofa frame **2** at the opposite end of the attachment to the seat part, in rotatable mounting places **18a, b**. When the seat part **4** is tilting in one direction, the flap **16** will tilt in opposite phase with this and thereby forming a "bend" or break in the sitting plane or surface and an elevation in the area by the knees of one sitting in the chaise longue provided with the sitting arrangement. This will increase the sitting comfort to a user sitting in the chaise longue. If the user chooses to lie down or more than one person are sitting on the chaise longue, the seat part will tilt back in passive position, so that a straight continuous sitting surface is formed, suitable for accommodating one person lying down, more persons sitting or persons partially slung on the sofa.

FIG. **2** shows the chaise longue with the seat part **4** in a second position, where the seat part is tilted downwards towards the back rest **3**. When the seat part is tilted the cross bar **9** closest to the back rest **3** tilt downwards, while the cross bar **9** closest to the flap **16** tilt upwards. The flap **16** thereby tilt upwards closest to the seat part **4** and will rotate around rotatable mounting member **18a, b** so that flap **16** and seat part **4** form an angle larger than 0° in relation to each other. This will be the case when someone for example leans towards the back rest **3** of the sitting arrangement.

Compared to other known solutions for a chaise longue or longseat, the present solution is distinguished by the seat and flap being hinged in a hinge point **17** between the seat and flap. In a first embodiment, the hinging can be conventional, with an ordinary to-part hinge with two socket pieces for connecting to the frame. The hinge can in a first end be firmly connected to the frame while the other end is allowed to slide freely inside the tube of the frame. Both ends are also allowed to slide freely inside the tubes. Thereby, in the hinge point, the frame will separate to some extent when the seat is tilted upwards.

Preferably the hinge point is realized as an elastic coupling as shown in FIG. **3a** and *b*. This is made of a socket piece **19** of an elastic polymeric material. The socket piece is conical towards both ends and is provided with a neck or collar **20** in the centre. The socket piece is preferably completely or partly sealed with a wall **21** in the middle of the tube. This coupling is easy to mount as it is merely slid into the pipe ends of the

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frames. It is made in one single piece and is consequently wearproof. Furthermore, it will not creak when used.

The invention claimed is:

1. A chaise longue comprising:

a sofa frame (2), seat part (4) and back rest (3),

where the seat part (4) comprises side bars (9a, b), cross bars (10a, b) and seat springs (7), characterized in that the back rest (3) is fixed, the seat part (4) is rotatably connected to the sofa frame (2) by means of mounting devices (8a, b) below a sitting surface of the seat part, wherein the mounting devices (8a, b) support the seat part (4) and allow for tilting of the seat part (4) within the sofa frame (2),

one or more balance springs (14) are attached between the seat part (4) and the sofa frame (2),

wherein the balance springs (14) provide resistance to the seat part (4) tilting within the sofa frame (2) maintaining balance to the seat part (4),

a flap (16) is rotatably mounted to the seat part (4) with pivotable joints (17a, b), the flap is rotatably connected to the sofa frame (2) by means of mounting places (18a, b) at the opposite end from the pivotable joints (17a, b), wherein the mounting places (18a, b) support the flap (16) and allow for tilting of the flap (16) within the sofa frame (2),

wherein the seat part (4) and flap (16) have a first position and a second position,

in the first position, the seat part (4) and flap (16) form an approximately straight continuous sitting surface, and in the second position, the seat part (4) is tilting downwards towards the back rest (3), resulting in the flap (16) tilting in the opposite direction due to the pivotable joints (17a, b), wherein the seat part (4) and the flap (16) form an angle larger than 0° in relation to each other.

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2. The chaise longue according to claim 1, where the mounting devices (8a, b) are arranged at approximately 1/3 of the distance from the front frame element (2c).

3. The chaise longue according to claim 1, where at least one pivotable joints (17a, b) is elastic,

the elastic pivotable joint (17a, b) comprises, a tubular formed sleeve or pipe socket (19) being conical in both ends, and a collar (20) arranged at the centre of the pipe socket,

wherein the sleeve (19) and the collar (20) is produced in a suitable polymeric material,

wherein one end of the sleeve (19) is engaged with the side bars (9a, b) of the seat part (4) and the opposite end of the sleeve (19) is engaged with the side bars (9a, b) of the flap (16).

4. The chaise longue according to claim 3, where the tubular formed sleeve comprises an internal wall (21) completely or partly sealing the sleeve.

5. The chaise longue according to claim 1, where at least one pivotable joints (17a, b) is elastic,

the elastic pivotable joint (17a, b) comprises, a tubular formed sleeve or pipe socket (19) being conical in both ends, and a collar (20) arranged at the centre of the pipe socket,

wherein the sleeve (19) and the collar (20) is produced in a suitable polymeric material,

wherein one end of the sleeve (19) is engaged with the side bars (9a, b) of the seat part (4) and the opposite end of the sleeve (19) is engaged with the side bars (9a, b) of the flap (16).

6. The chaise longue according to claim 5, where the tubular formed sleeve comprises an internal wall (21) completely or partly sealing the sleeve.

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