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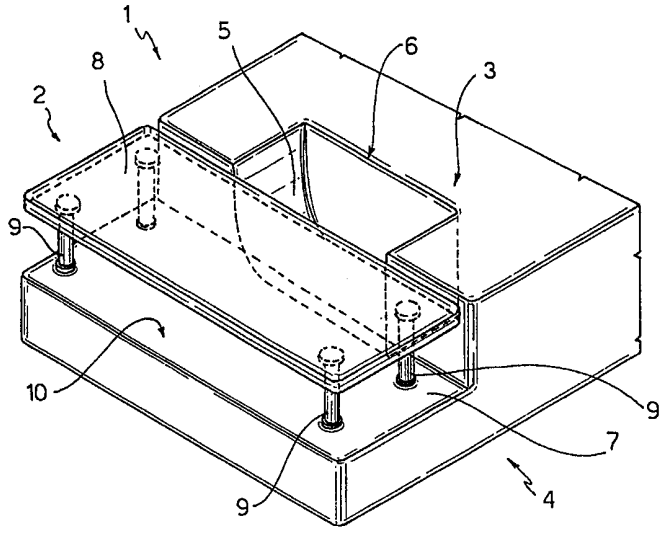

(57) Abstract

A neck support, for inducing sleep in a user in a prone position and including a rigid surface and adjustable connecting members, is located at a head end of a mattress to define, between the rigid surface and a surface of the mattress supporting the user's body, a cavity for receiving the user's arms. The connecting members provide for adjusting the height and tilt of the rigid surface, and for adjusting the rigid surface longitudinally with respect to the user in a recumbent position, so as to adjust the rigid surface to the physical characteristics and size of the user. An anatomical mattress, including a first recess with an opening coplanar with the supporting surface of the mattress, and a substantially step–shaped second recess formed at the head end and communicating with the first recess, is fitted with the neck support housed inside the second recess to define, with a bottom wall of the second recess, the cavity for the user's arms.

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NECK SUPPORT, IN PARTICULAR FOR IMPROVING SLEEP IN A PRONE POSITION, AND ANATOMICAL MATTRESS FEATURING SUCH A SUPPORT

TECHNICAL FIELD

The present invention relates to a neck support, in particular for improving sleep in a prone position, and to a mattress featuring such a support.

BACKGROUND ART

As is known, ordinary mattresses comprise a substantially flat surface for supporting the user's body.

The supporting surface is flexible and therefore only adapts to the physical characteristics of the user according to the pressure exerted on each part of the surface.

And to achieve a sleeping position such as to rest the user's neck muscles, pillows are ordinarily used, which are simply placed on the supporting surface of the mattress.

All the above factors result in several drawbacks.

Foremost of these is the tendency of the user, as a result of normal body movement during sleep, to move towards, and so press the pillow against, the headboard.

As a result, the pillow increases in height and so supports the user's head in an excessively high position, causing fatigue and stiffness of the neck muscles.

Further problems arise when the user, during sleep, assumes a prone position or a position lying on one side so that one arm (or both) is bent beneath the body or stretched out beneath the head, and large part of the body weighs on one shoulder or on the arms.

If prolonged, the above position may result in pains in the joints, or may seriously impair blood circulation in the upper limbs, thus resulting in numbing of the upper limbs and a general feeling of discomfort.

The user is therefore awakened frequently, and the quality of the user's sleep seriously impaired, by painful stimuli from the neck or upper limbs.

DISCLOSURE OF INVENTION

It is an object of the present invention to provide a neck support designed to eliminate the aforementioned drawbacks, and which in particular enables the user, during sleep, to maintain a prone position or a position lying on one side.

It is a further object of the present invention to

provide an anatomical mattress featuring a neck support, and which cooperates with the neck support to enable the user to assume a correct, comfortable sleeping position, in particular a prone position or a position lying on one side.

It is a further object of the present invention to achieve the above in a straightforward, low-cost manner.

According to the present invention, there is provided a neck support which is fittable to a mattress, is located at a head end of said mattress, and comprises a rigid surface and supporting means for supporting said rigid surface; said rigid surface supporting the head of a user lying on said mattress; characterized in that said supporting means, in use, lock said rigid surface in a work position in which the rigid surface defines, with a supporting surface of said mattress, a cavity for receiving at least one upper limb of a user lying on said supporting surface of said mattress in a prone position or on one side.

The present invention also relates to an anatomical mattress comprising a supporting surface for receiving the body of a user, a head end for accommodating the upper portion of the body of said user, and a first recess formed close to said head end; said first recess having an opening coplanar with said supporting surface to receive at least one limb of the user; characterized by comprising a second recess formed at said head end

and communicating with said first recess; and a neck support in turn comprising a rigid surface covering said second recess, and supporting means for supporting said rigid surface and locking the rigid surface in a work position in which the rigid surface defines, with a bottom wall of said second recess, a cavity for receiving, via said first recess, at least one upper limb of said user lying on said mattress in a prone position or on one side.

Some of the advantages of the present invention will be clear from the foregoing description.

In particular, both the height and tilt of the neck support may be adjusted to best suit the physical characteristics and size of the user; and, being fixed with respect to the mattress, the support provided for the user's head by the neck support is unaffected by any involuntary movement of the user during sleep.

A further advantage lies in the anatomical mattress being so shaped as to reduce the load on the shoulders and arms of the user when lying in a prone position or on one side.

The weight of the trunk and head is better distributed, thus preventing pains in the joints and numbing of the upper limbs due to impaired blood circulation.

The user therefore assumes a more comfortable sleeping position, which no longer results in frequent

awakening of the user or discomfort during sleep.

BRIEF DESCRIPTION OF THE DRAWINGS

A number of non-limiting embodiments of the present invention will be described by way of example with reference to the accompanying drawings, in which:

Figure 1 shows a view in perspective of an anatomical mattress with a neck support, in accordance with the teachings of the present invention;

Figure 2 shows a partially sectioned side view of the Figure 1 mattress and support;

Figure 3 shows a partially sectioned side view of a second embodiment of an anatomical mattress with a neck support, in accordance with the teachings of the present invention;

Figure 4 shows a side view of the Figure 3 support mattress comprising a sheet as claimed in Claim 9.

BEST MODE FOR CARRYING OUT THE INVENTION

With reference to Figures 1 and 2, number 1 indicates an anatomical mattress fittable with a neck support 2.

In a first embodiment of the invention, mattress 1 comprises a supporting surface 3 for supporting the body of a user; a head end 4 for receiving the upper portion of the user's body; and a first recess 5 formed close to head end 4 and having an opening 6, coplanar with supporting surface 3, for receiving at least one upper limb of the user.

Anatomical mattress 1 also comprises a substantially step-shaped second recess 7 formed at head end 4 and communicating with first recess 5.

Neck support 2 comprises a rigid surface 8 for supporting the head of a user lying on mattress 1; and supporting means 9 for supporting rigid surface 8.

Neck support 2 is so located as to cover head end 4 of mattress 1.

Supporting means 9 provide, in use, for locking rigid surface 8 in a work position in which the rigid surface defines, with a bottom wall 10 of second recess 7, a cavity 11 for receiving, through recess 5 and opening 6, at least one upper limb of a user lying on supporting surface 3 of mattress 1 in a prone position or on one side.

Supporting means 9 comprise adjusting means 12 for adjusting the height of rigid surface 8 with respect to supporting surface 3, for adjusting rigid surface 8 longitudinally with respect to mattress 1, and for adjusting the tilt of rigid surface 8.

More specifically, supporting means 9 comprise a number of supporting feet 13 adjustable independently in height and connected to rigid surface 8 by sliding means 14, conveniently comprising sliding pads, for adjusting the position of rigid surface 8 longitudinally with respect to mattress 1, and by spherical joint means 15 for adjusting the tilt of rigid surface 8.

A bottom end 16 of each supporting foot 13 is inserted inside a respective sleeve 17, where bottom end 16 cooperates with a respective contrast spring 18 located between a base 19 of the respective sleeve and end 16 of foot 13, and which provides for pushing foot 13 upwards.

Ends 16 can be locked selectively at different heights by means of known click-on locking devices (not described) to fix the height of rigid surface 8.

In the example shown, sleeves 17 are housed in respective seats 22 formed in mattress 1 (as shown in Figures 1 and 2).

Figures 3 and 4 show a second embodiment, indicated 2a, of the neck support according to the invention.

For the sake of simplicity, in the following description of the second embodiment and other variations, any parts similar to or identical with those already described are indicated using the same reference numbers.

In particular, at opposite ends, rigid surface 8 has two wings 23 projecting perpendicularly downwards.

Wings 23 may be fixed selectively in different positions to respective supports 24 on the mattress by means of a number of snap fasteners 25 arranged in at least two parallel columns; so that respective fasteners 25a on wings 23 may be connected to fasteners 25 in the two columns at the same or different heights to adjust

the height and tilt of rigid surface 8 and also to adjust rigid surface 8 longitudinally if more than two columns of fasteners 25 are provided.

In further embodiments not described for the sake of simplicity, supporting means 9 - in particular, sleeves 17 - of neck support 2 and supports 24 of neck support 2a may obviously be carried by a structural portion of the bed supporting mattress 1, as opposed to mattress 1 itself.

First recess 5 and second recess 7 are designed to receive, respectively, a first and a second series of preformed adapter cushions 26 of different thicknesses to adjust the size of and adapt recesses 5 and 7 to the physical characteristics and size of the user.

With reference to Figure 3, in a further embodiment of the invention, head end 4, comprising first recess 5, second recess 7 and neck support 2 or 2a, is defined by a removable anatomical appendix 27 fittable to mattress 1 by means of first fastening means 28.

First fastening means 28 are conveniently defined by snap fasteners 29 on the ends of a pair of plates or strips 30.

In a variation not shown for the sake of simplicity, fastening means 28 may be defined by at least one pair of Velcro strips.

Whichever the case, in the Figure 3 variation, mattress 1 is shorter than the standard length, and is

made up to standard mattress length by the addition of appendix 27.

On the upper face 30a of rigid surface 8, neck support 2a also has removable padding 31 fitted to rigid surface 8 by second fastening means 32.

This variation obviously also applies to the Figure 1 and 2 embodiment.

With reference to Figure 4, the present invention also relates to a sheet 33 shaped to adhere to supporting surface 3 and to surfaces defining first recess 5 and second recess 7 of mattress 1.

The invention is used as follows.

When resting on mattress 1, the body of the user is stretched out on supporting surface 3, with the head of the user supported on neck support 2 adjusted beforehand to the physical characteristics and size of the user to provide optimum support.

The user may assume a prone position or a position lying on one side, in which case, one or both arms may be inserted through first recess 5 into cavity 11.

The user's arms are thus located beneath the head, the weight of which, however, is supported entirely by neck support 2.

Moreover, depending on the position assumed, the weight of the trunk is distributed over the chest and abdomen or along one side, with no weight on the shoulder joints or arms.

Prolonged pressure, which may result in pains in the joints or impaired blood circulation, in turn resulting in numbing of the upper limbs, is therefore prevented.

As such, any painful stimuli disturbing the user's sleep, by frequently awakening and causing discomfort of the user, are eliminated.

Clearly, changes may be made to anatomical mattress 1 and neck support 2 as described herein without, however, departing from the scope of the present invention.

In particular, neck support 2 (or variation 2a) may obviously be applied to any mattress of traditional make.

In which case, cavity 11 is defined between rigid surface 8 and supporting surface 3 of the mattress, which extends over the whole of head end 4 of the mattress.

CLAIMS

1) A neck support which is fittable to a mattress, is located at a head end of said mattress, and comprises a rigid surface and supporting means for supporting said rigid surface; said rigid surface supporting the head of a user lying on said mattress; characterized in that said supporting means, in use, lock said rigid surface in a work position in which the rigid surface defines, with a supporting surface of said mattress, a cavity for receiving at least one upper limb of a user lying on said supporting surface of said mattress in a prone position or on one side.

2) A neck support as claimed in Claim 1, characterized in that said supporting means comprise adjusting means for adjusting the height of said rigid surface with respect to said supporting surface of said mattress, for adjusting said rigid surface longitudinally with respect to said mattress, and for adjusting the tilt of said rigid surface.

3) A neck support as claimed in Claim 1 or 2, characterized in that said supporting means are fittable selectively to said mattress or to a bed supporting said mattress; said adjusting means being lockable to prevent any movement of said neck support caused by involuntary movement of said user.

4) An anatomical mattress comprising a supporting

surface for receiving the body of a user, a head end for accommodating the upper portion of the body of said user, and a first recess formed close to said head end; said first recess having an opening coplanar with said supporting surface to receive at least one limb of the user; characterized by comprising a second recess formed at said head end and communicating with said first recess; and a neck support in turn comprising a rigid surface covering said second recess, and supporting means for supporting said rigid surface and locking the rigid surface in a work position in which the rigid surface defines, with a bottom wall of said second recess, a cavity for receiving, via said first recess, at least one upper limb of said user lying on said mattress in a prone position or on one side.

5) An anatomical mattress as claimed in Claim 4, characterized in that said supporting means comprise a number of supporting feet adjustable independently in height and connected to said rigid surface by sliding means for adjusting the position of said rigid surface longitudinally with respect to said mattress, and by spherical joint means for adjusting the tilt of said rigid surface.

6) An anatomical mattress as claimed in Claim 4, characterized in that said rigid surface has, at opposite ends, a pair of wings projecting perpendicularly downwards; said wings being fastenable

selectively to respective supports and/or to said mattress by means of a number of snap fasteners arranged in at least two parallel columns to adjust the height and tilt of said rigid surface and to adjust said rigid surface longitudinally with respect to said mattress.

7) An anatomical mattress as claimed in any one of Claims 4 to 6, characterized in that said first and said second recess respectively receive a first and a second series of preformed adapter cushions to adjust the dimensions of said first and said second recess and to adapt the first and second recess to the physical characteristics of said user.

8) An anatomical mattress as claimed in any one of Claims 4 to 7, characterized in that said head end is defined by a removable anatomical appendix fittable to a remaining portion of said mattress by first fastening means; said head end comprising said first and said second recess and said neck support.

9) A preformed sheet, characterized by being so formed as to adhere to said supporting surface and to surfaces defining said first and said second recess of a mattress as claimed in any one of Claims 4 to 8.

10) A neck support, as claimed in any one of Claims 1 to 8, characterized by having removable padding on an upper face of said rigid surface; said padding being fittable to said upper face of said rigid surface by second fastening means.

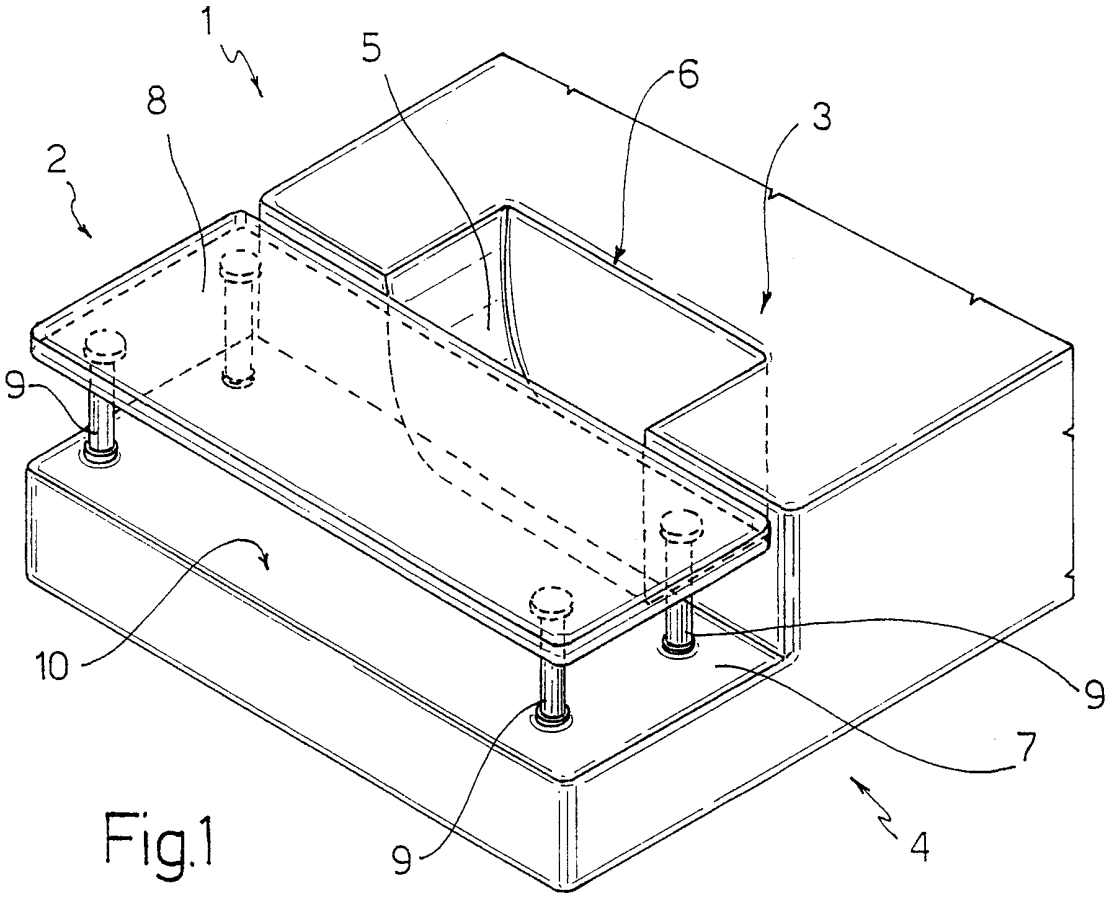

Fig.1

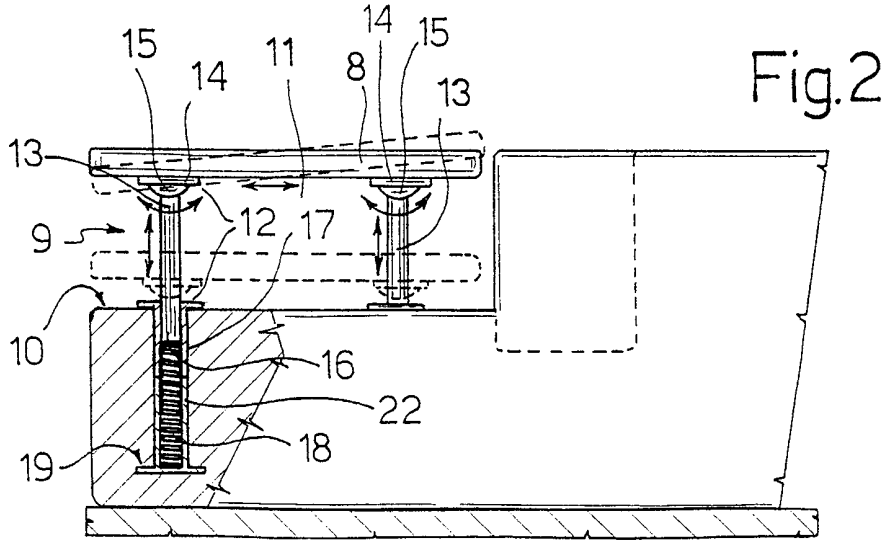

Fig.2

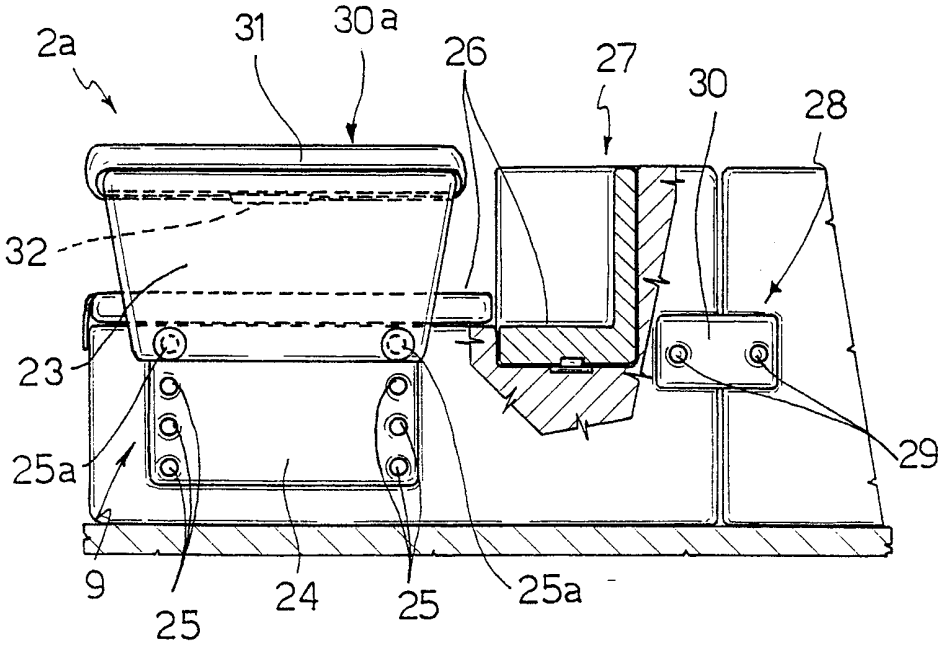

Fig.3

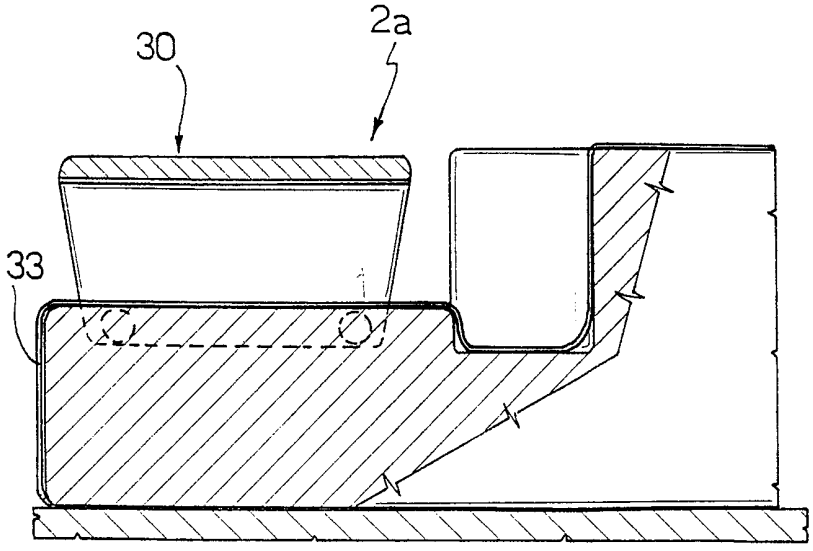

Fig.4

INTERNATIONAL SEARCH REPORT

Inter ɔnal Application No
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A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 A47C20/02

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 A47C

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
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A	DE 42 27 472 A (BROCKMANN KARL DIPL ING) 21 January 1993 (1993-01-21) column 1, line 32 - line 46; figure 1.4	1,3-5,7, 10
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A	US 5 337 429 A (TUCKER MARILYN) 16 August 1994 (1994-08-16) column 2, line 5 - line 15; figure 2	1-10

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[X] Further documents are listed in the continuation of box C.

[X] Patent family members are listed in annex.

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category '	Citation of document, with indication,where appropriate, of the relevant passages	Relevant to claim No.
A	US 4 584 730 A (RAJAN EVA) 29 April 1986 (1986-04-29) column 1, line 35 - line 42; figure 1	1-10

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Information on patent family members

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