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(54) Armrest in combination with working surface

(57) The invention concerns an design sitting and/or standing work, whereby a more vertical attitude is created of body, neck and head, and thereby also the possibilities are created for a complete support of forearms from elbow joint to hand.

The invention consists in a combination of:
1 inclined working surface
2 on both sides of the working surface an elbow support has been attached, the between-distance of these supports is adjustable, in the same or much the same plane as the working surface
3 no tools and/or control mechanisms are necessary for adapting the between-distance of the elbow supports.
4 room for legs and feet

The invention can be realised in multiple ways: to take along in hand luggage and to be used on a table, not to take along in hand luggage and to be used on a table, and as a specific table with all characteristics.

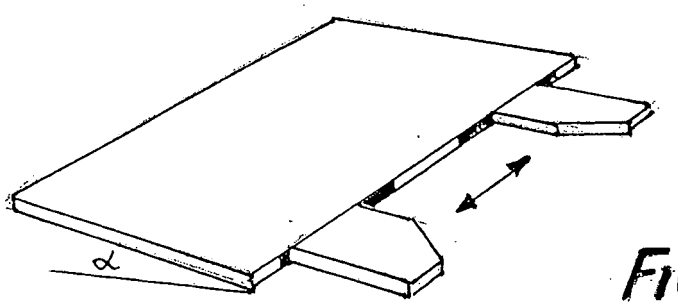

FIG. 4

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Description

[0001] Working, sitting or standing at a horizontal tabletop, especially neck and head are slightly bent and the forearms are generally only supported at the pulses and hands. An attitude slightly bend forward and none or insufficient possibilities of supporting the elbows/forearms form each separately and jointly extra stress for neck, shoulders and back. The consequence of this extra stress is the earlier appearance of fatigue and/or experience of insufficient comfort at performing the activities with what's at the tabletop. Moreover the risk of pain complaints increases. Productivity can be lower.

[0002] There are a lot of possible causes of a bent forward attitude, of which are most important: a distance too large between the eyes and the object to examine or read, the too small reading angle and/or too little contrast.
At the occurrence of one or more of these circumstances one has the need to bend the head with the eyes slightly forward. The head comes then somewhat before the body and the consequence is extra stress for neck and back.
Already in the middle ages one found a - partly - solution. One worked at an inclined work plane, a so-called desk.

Elbows

[0003] The weight of the arms and the shoulder girdle is carried by the back if by working sitting or standing the underside of the elbows/forearms have no support. If the elbows and/or forearms do lean on something then shoulders, neck and back are considerably more relieved. The support for the elbows and/or the forearms gives more comfort, is less tiring and/or reduces the risk of pain complaints.
Already a long time ago, the importance of elbow support has been recognised with the introduction on chairs of the armrests adaptable in altitude. Rather recently the support possibilities with the armrests have been extended with armrests, which are also adaptable in the between-distance. Thereby also the surface area of the armrests increased. The possibilities for elbow support by armrests of a chair adaptable in altitude and in mutual distance are not optimum.

[0004] The one part of the front forearm with the pulses lies on the table and the other part of the forearm with the elbow rests on the armrest of the chair. Most of the comfort is generally offered by the position of the elbows more or less against the body. The between-distance of the armrests must for this reason be as small as possible.
An objection of a small between-distance of the chair's armrests is the discomfort by the standing up and sitting down. The body and the hips which are somewhat broader must fit between the two armrests.

[0005] Another objection is that the forearms with the elbows and pulses are getting support at two separate parts. The pulses on the tabletop and the elbows on the chair's armrests.
Already hundreds of years ago a solution for this has been found. In the tabletop a recess was been made - generally in the form of a circle segment - so as to get support for the elbows before as well as beside the body on the parts next to the saving at the tabletop.
The place where the user wants to find support for the elbows at the recess in the tabletop depends on different factors, of which are most important: the nature of activities to perform, physique, and/or what one has become accustomed to.

[0006] The design with an inclined work plane and a recess for the body and possibilities of supporting the elbows has been known from International Application Number PCT /US099/27431 and to a lesser degree PCT/US00/00369, both of Edwin P. Lochridge, 452 Ridgwood Road, Atlanta USA. The breadth of the saving for the body in the tabletop is not, in this known design, adaptable and in the description the example has been mentioned the fixed distance of 45 cm.

[0007] The fixed distance is too large for small users; they must keep extra distance between their forearms which is not comfortable. For users with a broad body the fixed distance is too small; they do not fit in it.
The slope of the tabletop has not been mentioned, however, it is known that the slope angle is gradually adaptable. The following has not been described either:

- the depth of the recess
- the depth of the tabletop for the user has been attuned to the combination of a loose keyboard (and possibly a mouse) and a loose monitor on another tabletop
- the space for legs and feet; these measures can only be obtained from the characters with wide margins.

However, the placing of different table parts with respect to each other has been described. This invention is not about that.

[0008] In the Gebrauchsmusterschrift 200 17 604 U1 of Rehatec Dieter Frank Gmbh, 69259 Wilhelmsfeld Germany, a horizontal tabletop is mentioned with a rotating elbow support on both sides. Both elbow supports are in the same plane as the tabletop, can be rotated and can be blocked with control mechanisms.
Measures, space requirements for legs and feet, the angles have not been mentioned. It concerns a horizontal tabletop for, e.g., on a wheelchair.
This invention concerns a specific table (combination slope and armrests: adjustable in between distance) or an extra facility on a table, in addition to which collapsible -ready for hand luggage - designs have been mentioned.

[0009] The aims and objectives of this invention are to extend considerably the possibilities and/or a better guaran-

teeing, when working with what is on a tabletop (for example a laptop, paper), for a more erect attitude of the body and the head, and for the support for forearms and hands by the combination of:

- the angle of the working surface with the horizontal is adaptable between 0° and 30° or fixed by approximately 11°,
- the between-distance of the fore arm supports is adaptable by the user on a track,
- the measures and the angles of the inclined working plane, the elbow supports and the space for legs and feet (see table 1) have been chosen such that in fact everyone can use it, including the most of wheelchair users.

The working surface and its supplements have been mentioned in the figures.
This invention will be further explained below by means of realization examples showed in figures, and of the construction of the invention, without hereby restricting the realization.

[0010] Figure 1 shows schematically a side-view of the working surface, elbow supports, leg room etc. with references to the subject, to which they are related, see table 1. Figure 2 shows schematically a front-view of the working surface etc. with the references. Figure 3 shows schematically a view from above - detail of the elbow supports with the references.

[0011] The working surface adaptation can be incorporated in the table or designed as a separate accessory for a suitable table ('suitable' depends especially of the turning-safety of the combination table and accessory, altitude of the working surface, the room for legs and feet). Table and accessory together have then the same or similar measures and angles of the fixed table realization. With a supplement (for example a suction cup) each type of accessory can be attached to a suitable table. To the table realization all symbols, laid down in the table 1, apply.

[0012] To different accessory-types apply part of the symbols to the table to use: the horizontal area 1, thickness of the working surface on B line 4, leg space 5, working surface altitude 6a and b, the foot space the 7, foot space depth 8a and the 8b, leg space breadth 11 and working surface breadth 12. The symbols not mentioned concern the accessory. Of this there are several realizations. The examples of different accessory-types are in figures 4 up to and including 7b.

[0013] Fixed, not simply to reduce with measures of approximately 60 cm broad or more, and approximately 65 cm deep, and approximately 16 cm high; fig.4. Simply to assemble and disassemble with measures, ready-for-use, approximately 65 cm broad, approximately 65 cm deep and approximately 15 cm high, disassembled the measures are approximately 65 cm by 25 cm and an altitude of approximately 3 cm; fig.5.

[0014] Simply to assemble, disassemble and to reduce with measures, ready-for-use, of approximately 65 cm broad, approximately 65 cm deep and approximately 14 cm high, disassembled the measures are approximately 35 cm by 23 cm and an altitude of approximately 5 cm; fig.6.

[0015] Simply to assemble, disassemble and to reduce with measures, ready-for-use, of approximately 65 cm broad, approximately 65 cm deep and 14 cm high, disassembled the measures are approximately 40 cm by approximately 30 cm and an altitude of approximately 11 cm, so for example a laptop and other belongings can be transported in it; fig. 7a and fig. 7b.

Table 1 Measures in centimetres

Subject in Fig. 1,2, and 3	minimum	maximum	preferred, or if not adjustable
1 Horizontal plane	0		30
2 Inclined plane	20		40
3a Armrest length 3b Armrest breadth	5 4	45	20 12
4 Thickness of working surface on line B		4	
5 Room for legs	50		
6a Height of working surface on line B, sitting	35	90	73
6b Height of working surface on line B, standing	80	132	114
7 Room for feet; height	20		
8a Room for feet; depth, sitting	20 + 20		
8b Room for feet; depth, standing	20		
9 Distance line B - A1 en A2	15		
10 Distance armrest A1 - A2 adjusting track between	26	50	
11 Room for legs, breadth	35		50
12 Working surface, breadth	30		80

(continued)

Subject in Fig. 1,2, and 3	minimum	maximum	preferred, or if not adjustable
α Angle of inclination working surface	2.5°	30°	11°
β Angle of armrest	49°	71°	60°

Separately, an inclined working surface and a recess in the working surface, generally a circle segment, are already known of through age-old images.

Claims

1. The characteristic of the upright-armrest-working-surface, see fig 1, fig 2 and fig 3, is the combination of:

a an inclined working surface with
b in the same plane or much the same the elbow supports adaptable in between-distance. For the adaptation of the elbow supports to individual needs no tools and/or control mechanisms are required. The movements of the elbow supports have been slowed down.
c the measures and the angles of the inclined working surface, the elbow supports and the room for legs and feet have been laid down in table 1.

The realization examples, as have been laid down in figures 4,5,6,7a and 7b, are no restriction of the construction of the invention.

2. The upright-armrest-working-surface according to claim 1 in an realization according to figure 4 have the characteristic that, in combination with a tabletop on an individual support, the requirements of table 1 have been fulfilled.
This realization cannot be carried as hand luggage.
The measures of this realization (without tabletop and support) are approximately 80 cm X approximately 60 cm X approximately 16 cm.

3. The upright-armrest-support-working-surface according to claim 1 realised according to figure 5 has the characteristic that, in combination with a tabletop on an individual support, the requirements of table 1 have been fulfilled.
This realization can be assembled and disassembled so that to obtain, this realization can be carried as hand luggage.
Working position: approximately 65 cm X approximately 65 cm X approximately 16 cm.
Luggage: approximately 65 cm X approximately 25 cm X approximately 3 cm.

4. The upright-armrest-working-surface according to claim 1 realised according to figure 6 has the characteristic that, in combination with an individual tabletop, the requirements of table 1 have been fulfilled.
This realization can be assembled and disassembled. The surface of the armrests can be approximately halved, so that this realization too can be carried as hand luggage.
Working position: approximately 65 cm X approximately 65 cm X approximately 15 cm.
Luggage: approximately 35 cm X approximately 23 cm X approximately 5 cm.

5. The upright-armrest-working-surface according to claim 1 realised according to figures 7a and 7b has the characteristic that, in combination with a tabletop on an individual support, the requirements of table 1 have been fulfilled
This realization can be assembled and disassembled. The surface of the armrests can be approximately halved. The two composed parts leave room for remaining hand luggage, for example a laptop.
Working position: approximately 65 cm X approximately 65 cm X approximately 15 cm.
Luggage: approximately 40 cm X approximately 30 cm X approximately 11 cm.

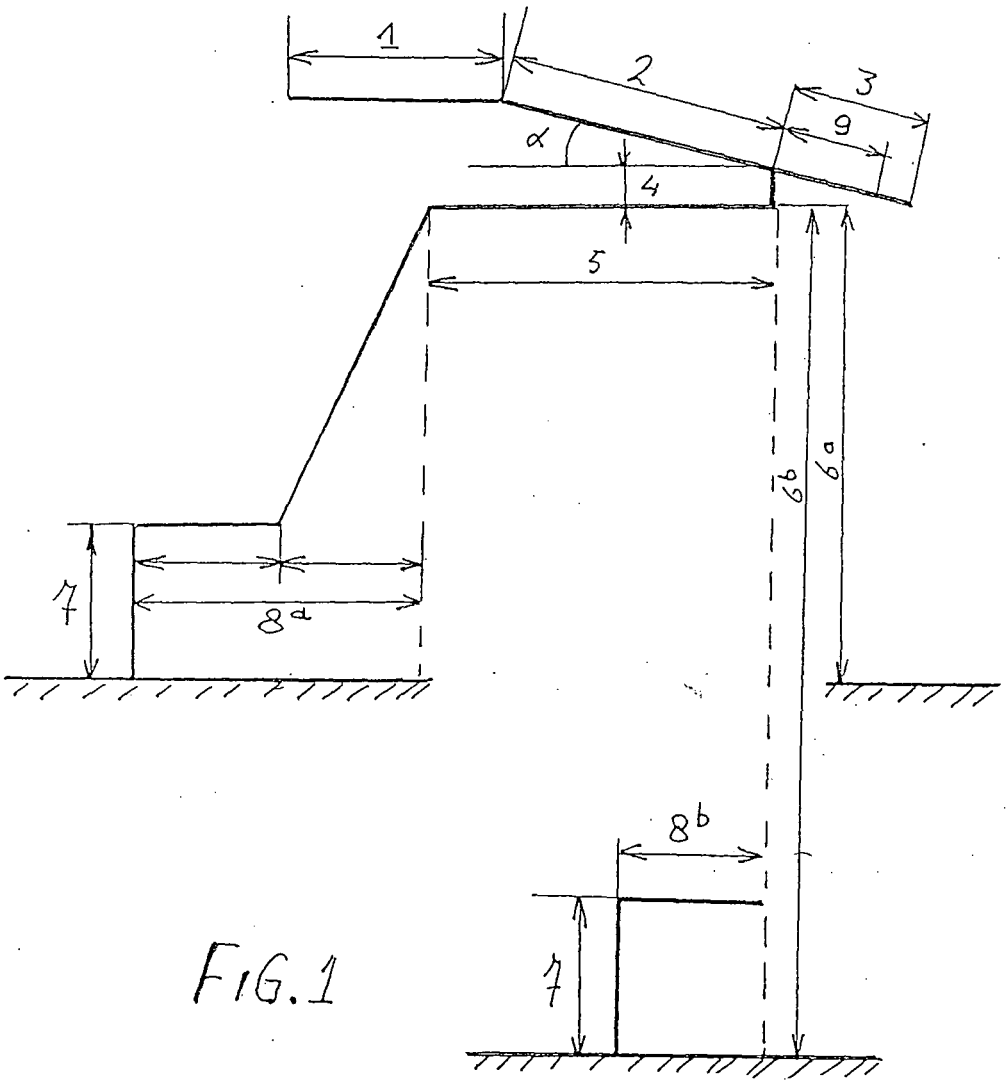


FIG.1

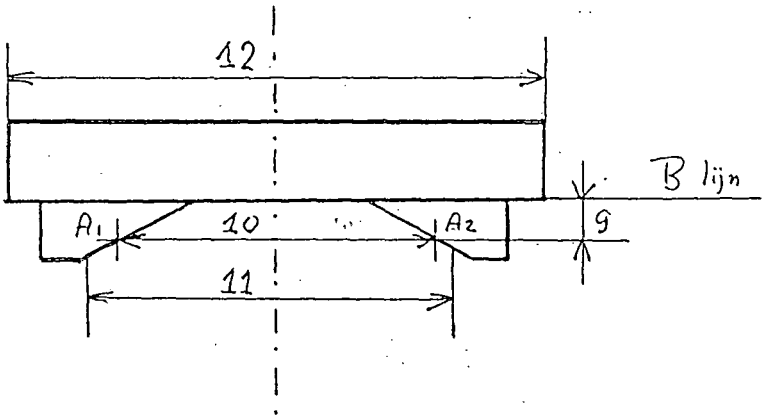


FIG.2

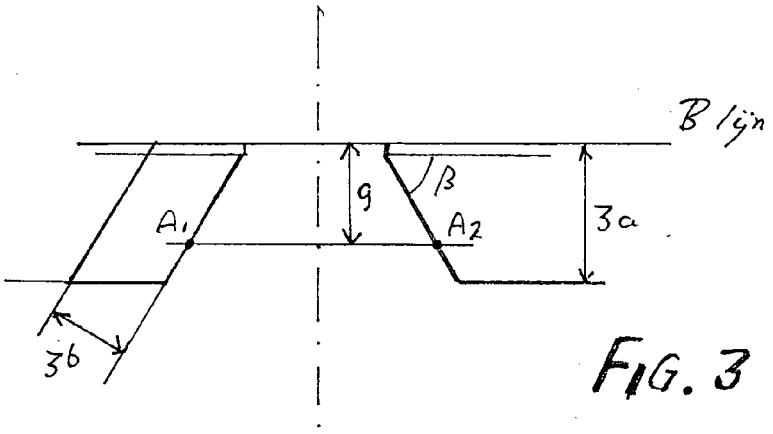


FIG. 3

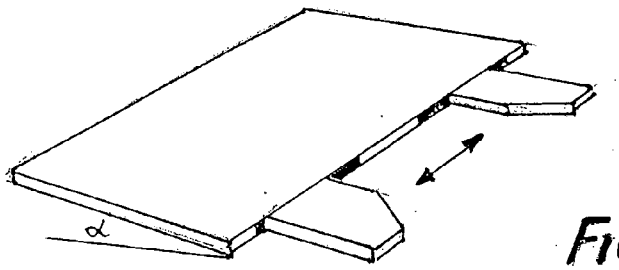


FIG. 4

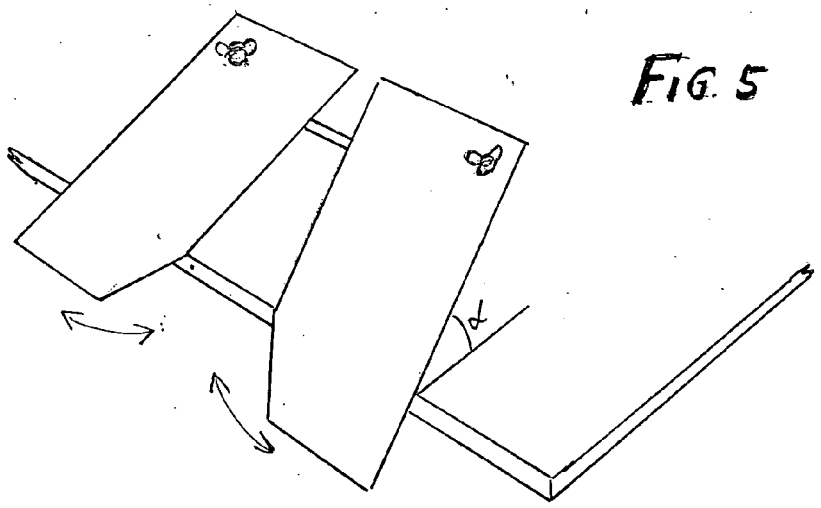


FIG. 5

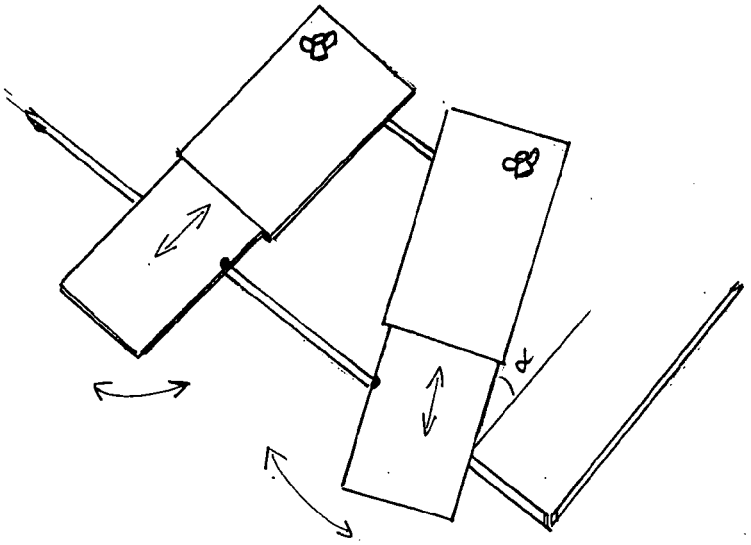
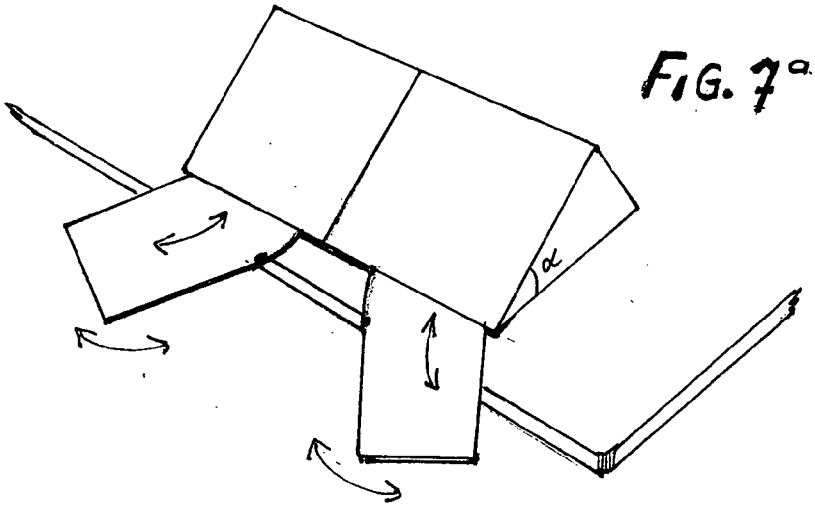


FIG. 6

FIG. 7a



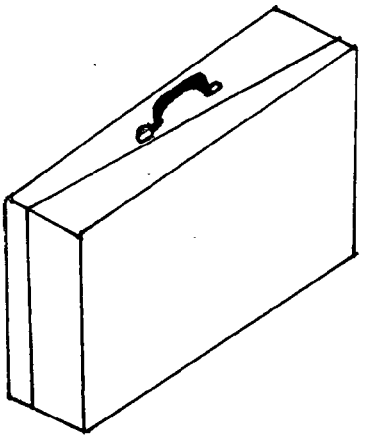


FIG. 7b

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- US 09927431 B **[0006]**
- US 0000369 W, Edwin P. Lochridge **[0006]**