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Calliper for surveying the human body

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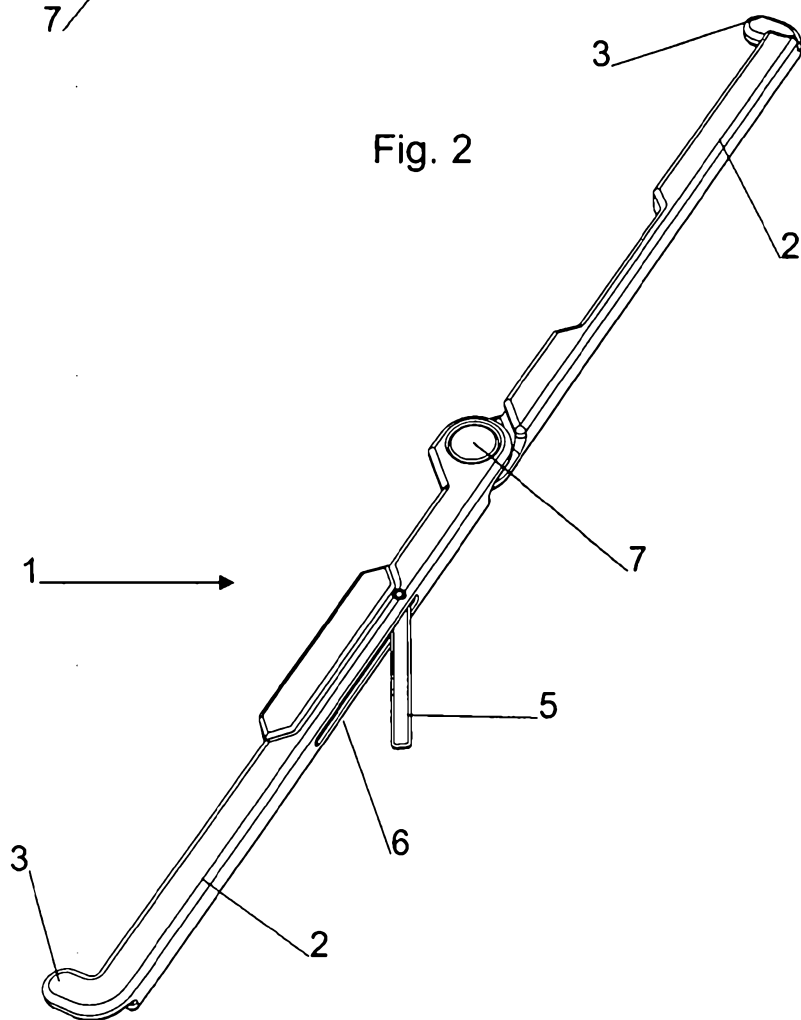
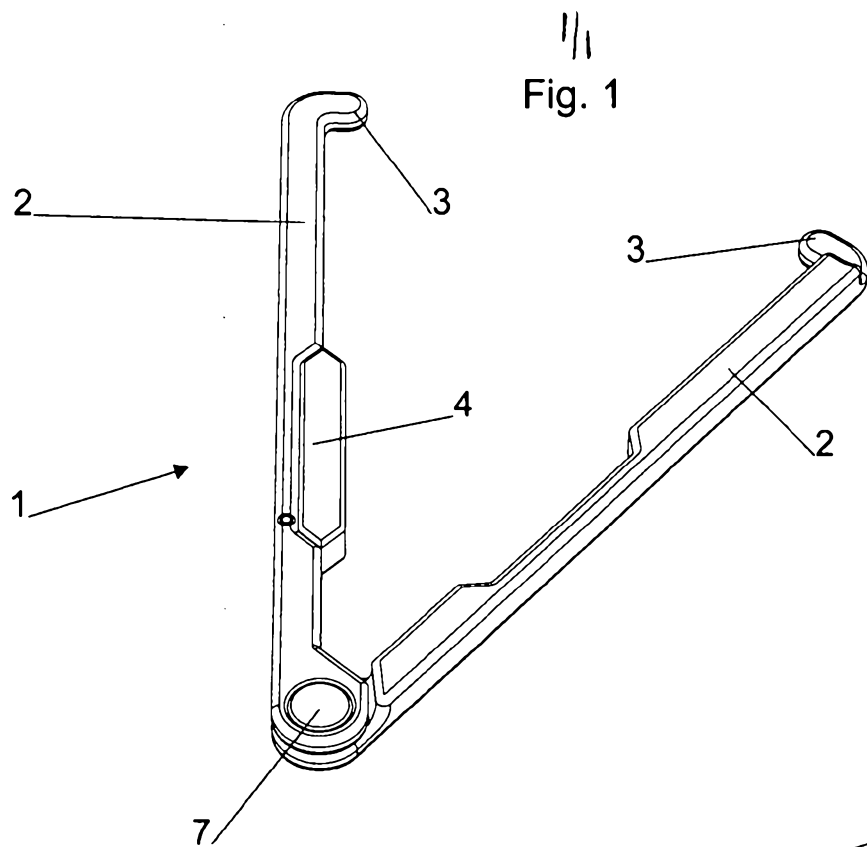
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ABSTRACT

The invention relates to a calliper (1), in particular for surveying the human body, comprising two shanks (2) connected by a hinge (7), which at their free ends each exhibit a measuring tip (3), and also measurement electronics (4) which are accommodated in one shank (2) and which register the respective position of the two shanks (2) relative to one another. A further measuring rod (5) is arranged on one shank (2) so as to be adjustable relative to this shank (2), the measurement electronics (4) registering the normal spacing between the longitudinal axis of the shank (2) and the tip of the measuring rod (5).

Fig. 2

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COMPLETE SPECIFICATION

Standard Patent

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Invention Title:

Calliper for surveying the human body

The following statement is a full description of this invention,
including the best method for performing it known to me/us:

CALLIPER FOR SURVEYING THE HUMAN BODY

The invention relates to a calliper, in particular for surveying the human body, comprising two shanks connected by a hinge, which at their free ends each exhibit a
5 measuring tip, and also measurement electronics which are accommodated in one shank and which register the respective position of the two shanks relative to one another.

A calliper of such a type is known from WO 00/06968, for
10 example. Such callipers can be employed, inter alia, in order to gauge the human body and in this way to register individual differences quantitatively. The measured values obtained can then, for example, be utilised in order to adjust objects - such as mattresses, slatted
15 frames, seating furniture or such like - optimally to the person being surveyed in the given case. The calliper is able to register various dimensions, such as shoulder width, hip width, or length of the vertebral column. In order, for example, to adjust a slatted frame optimally,
20 the respective lordosis of the person to be surveyed has to be additionally determined. For the time being, this is only possible with additional elaborate tools.

The objective of the invention is to create a calliper that, in addition to the previous functions, also permits
25 the lordosis of a person to be determined, in which connection the instrument is to be compact and simple in structure, and the registered values are to be made available in electronic form for further processing.

This object is achieved by a further measuring rod being
30 arranged on one shank so as to be adjustable relative to

this shank, the measurement electronics registering the normal spacing between the longitudinal axis of the shank and the tip of the measuring rod. For the surveying of the lordosis, the calliper is folded open to 180° and held
5 in the longitudinal direction against the vertebral column of the person to be surveyed. The adjustable measuring rod is then moved with its tip at the lowest point of the respective lordosis, and the measurement electronics record the corresponding value at this position.

10 One feature of the invention is that the measuring tips of the two shanks are rounded and are arranged so as to be directed towards one another, with the measuring tips optionally overlapping in the folded-up state of the calliper. By virtue of the rounded tips, a very gentle
15 measurement is possible, in which connection in addition the person to be surveyed is not put off by the measuring instrument.

The overlapping tips permit the calliper to be folded up completely, by virtue of which compact transportation is
20 possible.

A further feature of the invention is that the measurement electronics are provided with an interface for wireless transmission of data to a computer. In this way the measured data can easily be subjected to further
25 processing directly by means of a range of software.

According to a further feature of the invention there is provision that a readout and also an input device are arranged on the calliper. The varying measured values to be registered can consequently be selected and indicated
30 directly on the calliper.

Furthermore, with a calliper according to the invention there is provision that the shanks are capable of being locked in a position of 180° relative to one another. This facilitates the handling of the instrument in the
5 course of surveying the lordosis.

According to one possible embodiment of the calliper there is provision that the measuring rod is arranged in a guide in the shank so as to be capable of being displaced perpendicularly relative to the shank.

10 In accordance with an alternative embodiment of the calliper the measuring rod is connected to the shank via a hinge, and in the retracted state the measuring rod is received in a recess in the shank. This embodiment likewise permits a very compact structure, facilitating
15 simple transportation of the calliper.

The invention will now be elucidated in greater detail on the basis of the appended drawings, wherein

Fig. 1 shows a perspective view of a calliper according to the invention, and

20 Fig. 2 shows a further perspective view of the calliper from Fig. 1 in the folded-open position for measuring the lordosis.

The calliper 1 represented in Fig. 1 comprises two shanks 2 connected to one another by means of a hinge 7.
25 At the free ends of the shanks 2 there are provided measuring tips 3 which are inclined towards one another and rounded. They are arranged on the shanks 2 in such a way that in the folded-up state they overlap, by virtue of which the calliper 1 is capable of being folded up

compactly. In one of the shanks 2 there are furthermore accommodated measurement electronics 4 which serve for recording the measured values. In a recess 6 of one shank 2 a measuring rod 5 is furthermore arranged and is
5 connected to the shank 2 via a hinge. This measuring rod serves for surveying the lordosis of a person to be surveyed. The measurement electronics can receive, process and store measured values on the basis of the position of the shanks 2 relative to one another and also
10 on the basis of the position of the measuring rod 5 relative to the shank 2 connected to the measuring rod, and can also optionally transmit them to a computer via a wireless interface. For example, in the course of the surveying of a person for the individual adjustment of a
15 slatted frame the respective locum can employ the calliper according to the invention in situ, in order to register all relevant values - such as, for instance, shoulder width, hip width, length of the vertebral column, and lordosis of the person to be surveyed - and consequently
20 to adapt the slatted frame individually. In this connection he/she needs only a single measuring instrument which by reason of its compact design is easy to transport and consequently can be employed ideally in the field, in situ at the home of the customer.

25 **Fig. 2** shows the calliper 1 in a folded-open position in which the lordosis can be surveyed. The two shanks are positioned at 180° relative to one another and can optionally be locked in this position. The folded-open calliper is held perpendicularly up against the person to
30 be surveyed, who is standing upright, along the vertebral column. As a result of the measuring rod 5 being unfolded and as a result of the calliper being displaced in the

perpendicular direction, the lowest point, in the given case, of the lordosis of the person to be surveyed can consequently be registered with the tip of the measuring rod 5. In this connection the measurement electronics
5 calculate, on the basis of the position of the measuring rod 5, the normal spacing between longitudinal axis of the shanks 2 to the tip of the unfolded measuring rod 5.

In the claims which follow and in the preceding description of the invention, except where the context
10 requires otherwise due to express language or necessary implication, the word "comprise" or variations such as "comprises" or "comprising" is used in an inclusive sense, i.e. to specify the presence of the stated features but not to preclude the presence or addition of further
15 features in various embodiments of the invention.

It is to be understood that, if any prior art publication is referred to herein, such reference does not constitute an admission that the publication forms a part of the common general knowledge in the art, in Australia or any
20 other country.

THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:

1. Calliper (1), in particular for surveying the human body, comprising two shanks (2) connected by a hinge (7), which at their free ends each exhibit a measuring tip (3), and also measurement electronics (4) which are accommodated in one shank (2) and which register the respective position of the two shanks (2) relative to one another, **characterised in that** a further measuring rod (5) is arranged on one shank (2) so as to be adjustable relative to this shank (2), the measurement electronics (4) registering the normal spacing between the longitudinal axis of the shank (2) and the tip of the measuring rod (5).
2. Calliper according to Claim 1, **characterised in that** the measuring tips (3) of the two shanks (2) are rounded and are arranged so as to be directed towards one another, with the measuring tips (3) optionally overlapping in the folded-up state of the calliper (1).
3. Calliper according to Claim 1 or 2, **characterised in that** the measurement electronics (4) are provided with an interface for wireless transmission of data to a computer.
4. Calliper according to one of Claims 1 to 3, **characterised in that** a readout and also an input device are arranged on the calliper (1).
5. Calliper according to one of Claims 1 to 4, **characterised in that** the shanks (2) are capable of

being locked in a position of 180° relative to one another.

6. Calliper according to one of Claims 1 to 5,
characterised in that the measuring rod (5) is
5 arranged in a guide in the shank (2) so as to be
capable of being displaced perpendicularly relative to
the shank.
7. Calliper according to one of Claims 1 to 5,
characterised in that the measuring rod (5) is
10 connected to the shank (2) via a hinge, and in that in
the retracted state the measuring rod (5) is received
in a recess (6) in the shank (2).

