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(54) **Adjustable saddle tree head**

(57) An adjustable saddle tree head wherein a knee lever type of adjustment mechanism (6) comprises a threaded bolt (12), provided with a head (14) having a hexagon socket, the bolt (12) being held by two sledges (16,18), wherein one sledge (18) is provided with a threaded hole, to engage with the bolt (12), and the other sledge (16) is provided with a through hole adapted to the diameter of the bolt (12); and a sleeve is provided on the bolt (12), between the head (14) and the sledge (16) with the through hole, as well as a nut (22), to keep the

bolt (12) in a longitudinally fixed position with respect to the sledge (16) with the through hole; the separate parts (2,4) are provided with hinges (24), to which rods (26) are pivotally connected; the rods (26) being connected with the sledges (16,18) by means of knee levers (28); so that by turning the bolt (12), the sledges (16,18) move either towards each other or away from each other, depending upon the direction into which the bolt (12) is turned, and driven by the knee levers (28), the separate parts (2,4) pivot around an axis pivotally connecting them to each other.

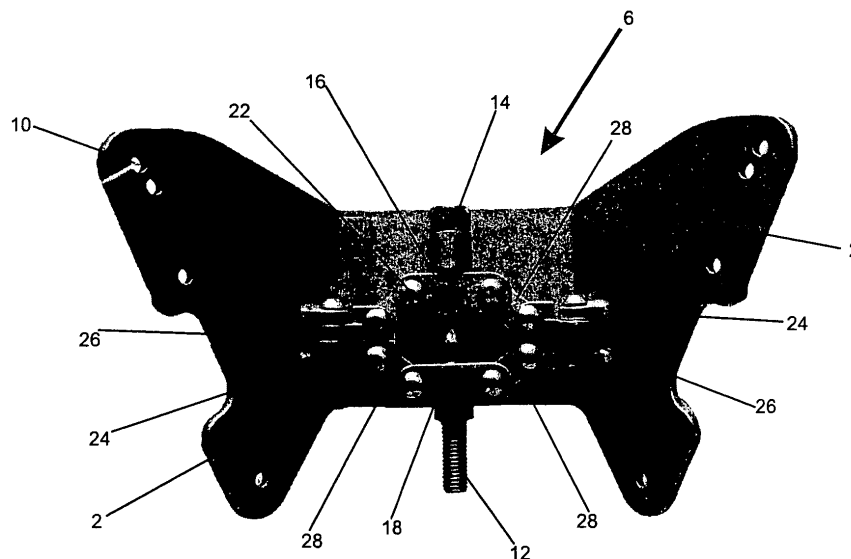


Fig. 2

Description

[0001] The following invention is directed at a variably adjustable saddle tree head according to the preamble of independent patent claim 1.

[0002] It has been a problem for as long as saddles have been used to ride horses that a single saddle, due to the fact that each horse back has a different shape and geometry, can hardly be used with different horses, unless it can be adjusted by appropriate means. Furthermore there exists a need for adjusting a saddle to the changing back geometric of a horse -summer winter.

[0003] Accordingly, variable saddle tree heads have been developed, but have not been successful in the horse back riding sport.

[0004] Proposed solutions comprised saddle tree head consisting of plastics. This type of saddle tree head combines the capability to absorb weight with low production costs. An essential disadvantage of this construction lies in the realization of the adjustment of such a saddle with a plastic-core, as the adjustment can only be carried out by an expert by means of great expense, since the saddle tree head can only be deformed through heat. The problem lies in the exact observation of the softening temperature within a few degrees of the plastic, in order to adjust the saddle. If the temperature is too high, the material will melt, if it is too low, the saddle tree head can break. Furthermore, the plastic saddle tree head can hardly be adjusted to changing geometries of the back of one and the same horse, let alone the fact that it can hardly be used with different horses over the year.

[0005] Other saddle tree head adjustments propose an adjustable upholstery with air chambers or liquid cushions, such as in DE 41 00 027, and DE 199 47 304 Al. However, there are impermeability problems and dents on the horse's back, caused by this type of adjustment, that offset the advantages of it.

[0006] Furthermore saddle adjustments by means of wedges or screws in the region of the saddle head were proposed, such as in DE-OS 29 23 002 Al. Disadvantages of these constructions are an inadmissible high clearance, and related to that unwanted breathing of the saddle during the ride, or a bulky construction, that makes a reasonable integration into the saddle nearly impossible. At the same time, the adjustment of the saddle with this type of device is only possible from the side or from underneath.

[0007] Accordingly, all of the proposed solutions were either difficult to handle, or failed to provide the desired result of having a saddle that can be used satisfactorily with different horses or changing geometries of the horse back over the seasons of the year.

[0008] It is the object of the present invention therefore, to provide an adjustable saddle tree head that is easily adjustable to different types and geometries of horse backs and avoids the drawbacks of know adjustable saddle tree heads.

[0009] The problem is solved by a saddle tree head

with the features as contained in independent patent claim one, while useful embodiments are described by the features contained in the dependant claims.

[0010] Provided is an adjustable saddle tree head, which, according to the invention, has two separate parts, pivotally connected by means of a knee lever type of adjustment mechanism. The knee lever type of adjustment mechanism provides the possibility of deliberately and with ease adjusting the angle between the two separate parts of the saddle tree, to reliably adapt it to different geometries of horse backs.

[0011] According to a preferred embodiment, the two separate parts of the saddle tree according to the invention are formed as two symmetric bending plates. Forming the two separate parts as symmetric bending plates helps to preserve the head shape of the saddle tree head.

[0012] Due to the geometric conditions and the use of building parts, an integration in the saddle is possible, which does not add cumbersome weight to the lower side of the saddle and is not neglectfully small on the upper side, but can be concealed by a simple application of a cushion. The riding style, however, will in no way be effected by application of the adjustable saddle tree according to the invention.

[0013] According to the invention all parts of the saddle adjustment are clearance free, which guarantees a steady form of the saddle during riding. Furthermore, through the construction of the adjustment mechanism as a knee lever construction, a self-inhibition is provided that prevents a movement of the adjustment mechanism of the saddle while riding. The self-inhibition can also be further strengthened by additional construction elements, such as a threaded bolt to provide for the adjustment movement of the knee mechanism and a nut to fix the bolt in a certain adjustment position.

[0014] The saddle tree head according to the invention adjustment can be produced from cast, stamped or milled single parts. The single parts can be riveted, welded or screwed together.

[0015] Further characteristics and advantages can be taken from the following description of a preferred embodiment of the saddle tree head, under reference to the enclosed figures, the figures showing:

Fig. 1 a 3 dimensional view of the upper side of an embodiment of the saddle tree head; and

Fig. 2 a 3 dimensional view of the under side of the embodiment of the saddle tree head according to fig. 1.

[0016] In Fig. 1 a 3 dimensional view of the upper side of an embodiment of the adjustable saddle tree head according to the invention is shown. The saddle tree head has two separate parts 2 and 4, which are pivotally connected in the middle by means of a knee lever type of adjustment mechanism 6, which will be described in more detail with respect to fig. 2. What can be seen is a thread-

ed bolt 12. At the interface between parts 2, and 4, an axis (not shown) is provided, around which the parts 2, 4 can pivot. According to the preferred embodiment as shown in fig. 1, the two separate parts of the saddle tree according to the invention are formed as two symmetric bending plates 2, 4, which helps to preserve the head shape of the saddle tree head and make it compatible with common types of saddles. The bending plates 2, 4 are provided with ribs on the outside to provide enhanced stability of the plates, and which are provided in a net like manner, to strengthen the plates 2,4 both longitudinally and transversely. The shape of the bending plates 2,4 as such follow the forms that common saddle trees have anyway, and are provided with holes 10 accordingly, so that further elements of the saddle may be fixed thereto.

[0017] Referring to fig. 2, the same embodiment of the saddle tree head as in fig. 1 is shown, but from the under side, wherein the same elements as in fig. 1 are provided with the same reference signs. What can be seen in fig. 2 is the knee lever type of adjustment mechanism 6, providing the possibility of deliberately and with ease adjusting the angle between the two separate parts 2, 4 of the saddle tree, to reliably adapt it to different geometries of horse backs. The threaded bolt 12 is provided with a head 14 having a hexagon socket, to turn the shaft 12 with a key fitting into the socket of the head 14 if desired. The bolt 12 is held by two sledges 16 and 18, wherein sledge 18 is provided with a threaded hole, to engage with the bolt 12, and the sledge 16 is provided with a through hole adapted to the diameter of the bolt 12. Furthermore, a sleeve 20 is provided on the bolt 12, between the head 14 and the sledge 16, as well as a nut 22, to keep the bolt 12 in a longitudinally fixed position with respect to the sledge 16. As can be further seen in fig. 2, the bending plates 2, 4 are provided with hinges 24, to which rods 26 are pivotally connected. Finally, the rods 26 are connected with the sledges 16 and 18 by means of knee levers 28. By turning the bolt 12, the sledges 16 and 18 will move either towards each other or away from each other, depending upon the direction into which the bolt 12 is turned. Accordingly, and driven by the knee levers 28, the bending plates 2, 4 pivot around the axis, by means of which they are connected to each other.

[0018] All parts of the saddle tree head adjustment as shown in the figures are clearance free, which guarantees a steady form of the saddle during riding. Furthermore, through the construction of the adjustment mechanism as a knee lever construction, a self-inhibition is provided that prevents a movement of the adjustment mechanism of the saddle while riding.

[0019] The saddle tree head as shown in figs. 2 and 4 are made from cast metal. However, other embodiments may just as well comprise bending plates made from other suitable materials such plastics, wood, or aluminium amongst others. Furthermore, the single parts can be just as well stamped, milled, and can be riveted, welded or screwed together. In particular, the saddle tree head can be made from an injection moulded part, which is

split in the middle to form the separate parts.

Claims

1. An adjustable saddle tree head, **characterised in** comprising two separate parts (2, 4), pivotally connected by means of a knee lever type of adjustment mechanism (6).
2. The adjustable saddle tree head according to claim 1, **characterised in that** the two separate parts (2, 4) of the saddle tree are formed as two symmetric bending plates.
3. The adjustable saddle tree head according to claim 1 or 2, **characterised in that** all parts of the adjustment mechanism adjustment are assembled in a clearance free manner.
4. The adjustable saddle tree head according to any of the preceding claims, **characterised in that** the bending plates (2, 4) are provided with ribs on the outside which are provided in a net like manner.
5. The adjustable saddle tree head according to any of the preceding claims, **characterised in that** the knee lever type of adjustment mechanism (6) comprises a threaded bolt (12), provided with a head (14) having a hexagon socket, the bolt (12) being held by two sledges (16, 18), wherein one sledge (18) is provided with a threaded hole, to engage with the bolt (12), and the other sledge (16) is provided with a through hole adapted to the diameter of the bolt 12; and a sleeve (20) is provided on the bolt (12), between the head (14) and the sledge (16) with the through hole, as well as a nut (22), to keep the bolt (12) in a longitudinally fixed position with respect to the sledge (16) with the through hole; the separate parts (2,4) are provided with hinges (24), to which rods (26) are pivotally connected; the rods (26) being connected with the sledges (16, 18) by means of knee levers (28); so that by turning the bolt (12), the sledges (16, 18) move either towards each other or away from each other, depending upon the direction into which the bolt (12) is turned, and driven by the knee levers (28), the separate parts (2, 4) pivot around an axis pivotally connecting them to each other.
6. The adjustable saddle tree head according to any of the preceding claims, **characterised in that** the saddle tree head is made from cast metal.
7. The adjustable saddle tree head according to any of claims 1 to 6, **characterised in that** the saddle tree head is made from plastics.

8. The adjustable saddle tree head according to any of claims 1 to 6, **characterised in that** the saddle tree head is made from wood.
9. The adjustable saddle tree head according to any of claims 1 to 6, **characterised in that** the saddle tree head is made from aluminium. 5
10. The adjustable saddle tree head according to any of the preceding claims, **characterised in that**, the single parts of the saddle tree head are riveted, welded or screwed together. 10

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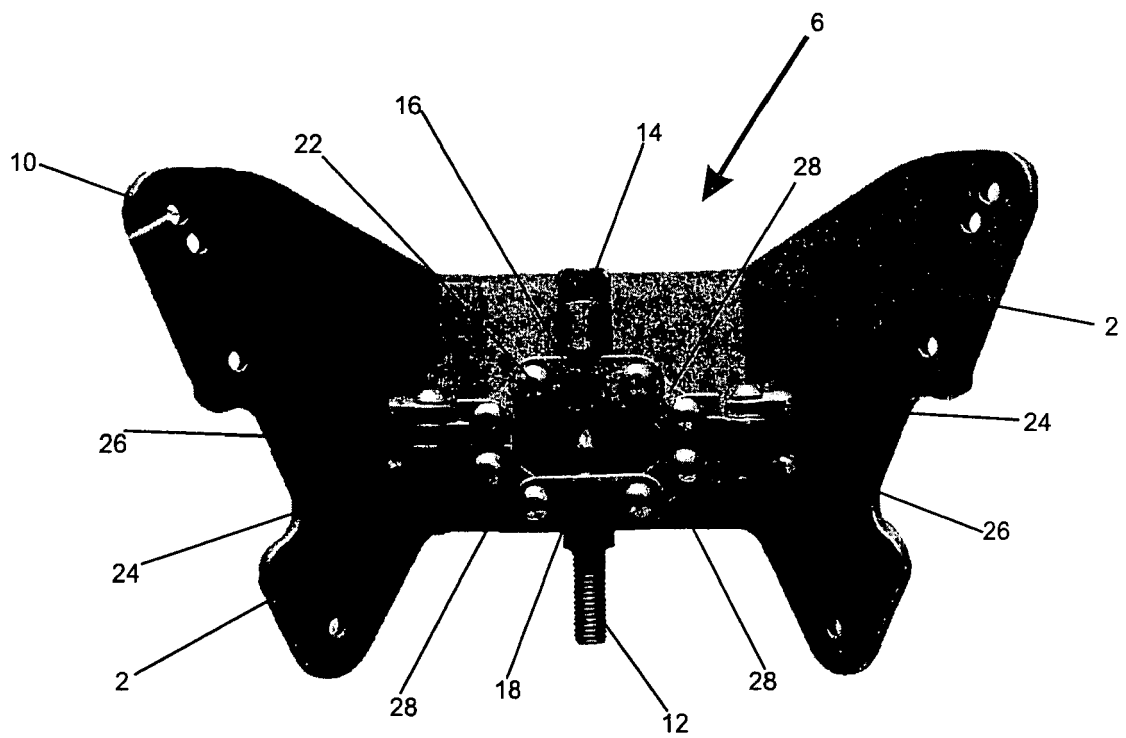
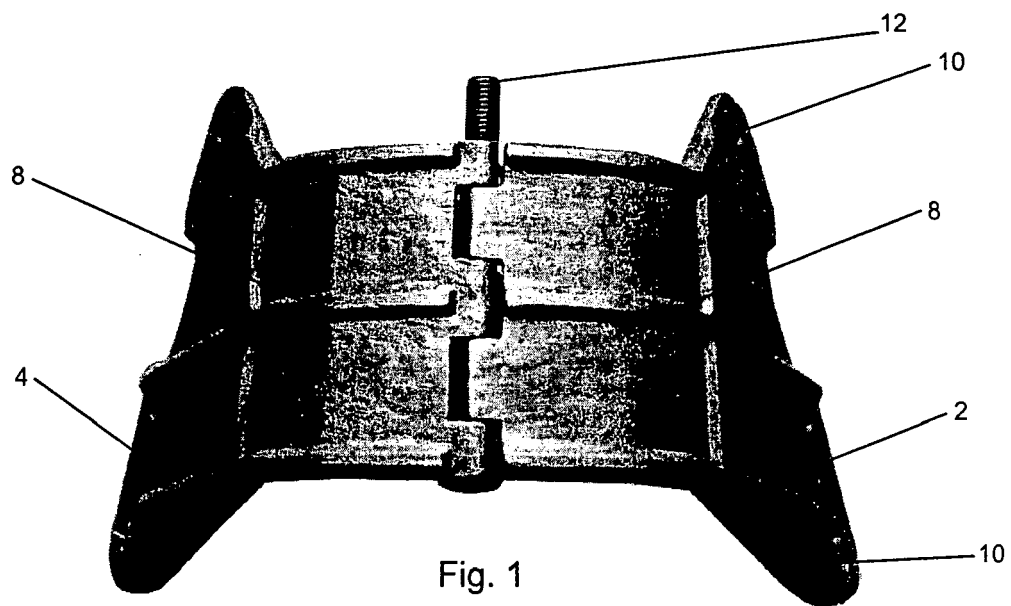


Fig. 2