

Erläuterungen zum Patent WO 2015/121142 AI – Neue Schule Turtle Gebissmundstück -

Die Neue Schule Trensenmundstücke „Turtle Top“ und „Turtle Tactio“ haben KEINE „arretierende Verbindung“, was irrtümlicherweise aufgrund einer gewissen Ähnlichkeit zu Gebissen anderer Hersteller, die „zur Stange werden“, vermutet werden kann.

In der im folgenden auszugsweise angefügten Patentschrift erklärt der Erfinder ausdrücklich, dass die gegenseitige Beweglichkeit der beiden Hälften eines Trensengebisses notwendig ist, um richtungsweisende Hilfengebung damit überhaupt zu ermöglichen (s. S. 2 Z.24ff; S. 3 Z 20-24). Es wird mehrfach auf die notwendige Beweglichkeit („free play“) der Gelenkbestandteile hingewiesen (S. 2 Z 16; S. 3 Z 13-15).

Im Folgenden wird dann der Zweck des neuen Designs erklärt: Die Beweglichkeit der Gebisshälften soll beschränkt werden auf den für die Zügelhilfen notwendigen und sinnvollen Bewegungsspielraum, um das „Hochklappen“ der Arme (in einem zur Hilfengebung nicht sinnvollen Winkel), mit dem die Pferde das Gebiss mit den Zähnen fixieren, zu erschweren. Dies wurde als ein potentiell Sicherheitsrisiko erkannt (S. 3 Z6ff; S.5 Z6-8).

Auf S.6 Z 15-18 wird noch einmal betont, **dass die volle Beweglichkeit für die Zügeleinwirkung (d.h. in Richtung der Zunge) erhalten bleibt**. Auf S. 6 wird ab Z 24 erläutert, dass die relevanten bzw. nicht sinnvollen Bewegungswinkel in den Quadranten (Viertelkugeln) Q2 bzw. Q1 zu finden sind, wie in Abbildung 8 gezeigt wird. **Im sinnvollen Winkelbereich ist eine freie Bewegung immer möglich (S.7 Z9,10).**

In den unten gezeigten Abbildungen wird deutlich, dass durch die abgerundeten Gelenkkanten und -flächen des Mittelstücks (Abb. 4) ein „Arretieren“ (Definition laut Duden: arretieren= (bewegliche Teile eines Geräts) feststellen, sperren, blockieren) überhaupt nicht möglich ist.

Selbst bei versehentlicher oder absichtlich falscher Zügeleinwirkung kann das Gebiss nicht blockiert werden, die Aussparungen im (ansonsten ovalen) Gelenkdach (Abb.5) sorgen dafür, dass die Arme zur Seite wegrutschen.

Die vollständige Patentschrift kann bei berechtigtem Interesse übersandt werden, bitte senden Sie eine Email an c.krajewski@nsbits.com



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(54) Title: HORSE BIT

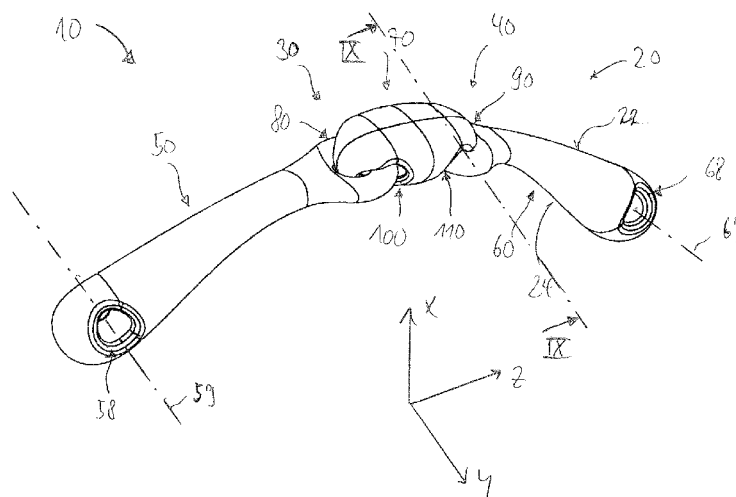


Fig. 3

(57) Abstract: The invention relates to a horse bit (10, 210) comprising a shackle (20, 220) configured to be inserted into a horse's mouth. The shackle comprises at least one joint (30, 40; 230) and two side portions (50, 60, 250, 260), wherein the two side portions are connected by the at least one joint such that the side portions are pivotable to each other, and at least two eyelet members (80, 90, 100, 110; 280, 290) each having an eyelet bore (82, 92, 102, 112; 282, 292), wherein the eyelet members are interlocked with play via their eyelet bores to provide the at least one joint. Further, in a cross section in the range of one of the eyelet members along or substantially parallel to an axis of the eyelet bore a cross-sectional width (W1, W2) of the one eyelet member is larger than the inner width (W3) of the eyelet bore of the other eyelet member.



Horse bit

The present invention relates to a horse bit, in particular to the mouthpiece or shackle of the horse bit. The horse bit can also be designated as snaffle bit for a horse.

- 5 EP 1 140 693 B1 discloses a horse bit comprising a shackle configured to be inserted into a horse's mouth. In one embodiment a single jointed horse bit comprises two elongated side portions whose inner ends provide eyelets for interlocking and forming a joint similar to that seen in a chain-link system. This embodiment provides a single joint with free play to allow the mouth-
- 10 piece to adopt a large range of positions within the mouth. The interlocking eyelets are designed to allow such freedom. In another embodiment a double jointed horse bit comprises two elongated side portions whose inner ends provide eyelets for joining loosely to a central portion which itself contains eyelets to receive the side portion eyelets to form two joints. This embodi-
- 15 ment provides for two joints connecting the side portions to the central portion each having free play around a large range of 3-dimensional angles. The central portion is designed to allow such freedom.

In general, double jointed horse bits provide the advantage over single joint-

20 ed horse bits by reducing the nutcracker action described by unrestrained pressure of the single joint structure across the tongue of the horse when rein tension is applied.

The free play in the joints of the single or double jointed bits provides the an-

25 gular range of rotation of the two side portions necessary to convey speed commands and directional commands to the horse from the rider through the reins.

Tongue pressure variation is predominantly the basis of commands to control speed and is provided upon bilateral tensioning of the reins by the freedom of the side portions of the bit to close across the tongue and bars of the lower jaw of the horse. Unequal tensioning of the two reins is the basis of commands to indicate direction changes to the horse.

What has not been accounted for is that the allowance of this free play around a large range of angles brings the possibility that the horse can push up the side portions of the bit with its tongue so that it can then be pulled back along the mouth and then clamped between the pre-molars. This leads to a loss of utility of the bit and can create an unsafe situation due to the lack of control. This disadvantage allows the horse to clamp the bit between the teeth and thus prevent effective rein aids from being applied.

It is an object of the invention to provide a horse bit with a limited range of free play within the horse's mouth so as to suppress or prevent the horse pushing up the shackle or the side portions of the bit with its tongue so that it can then be pulled back along the mouth and then clamped between the pre-molars. At the same time the horse bit should provide an appropriate angular range of rotation of the two side parts necessary to convey speed commands and directional commands from the rider to the horse through the reins connected to the side portions.

Summary of the invention

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The above object is achieved by a horse bit according to claim 1. According to the present invention, the horse bit comprises a shackle configured to be inserted into a horse's mouth, wherein the shackle has at least one joint and two side portions, wherein the two side portions are connected by the at least one joint such that the side portions are pivotable to each other and at least two eyelet members each having an eyelet bore, wherein the eyelet members are interlocked with play via their eyelet bores to provide the at

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least one joint. Further, in a cross section in the range of one of the eyelet members and along or (substantially) parallel to an axis of the eyelet bore the cross-sectional width of the one eyelet member is larger than the inner width of the eyelet bore of the other eyelet member.

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The horse bit according to the invention preferably is a single jointed horse bit, i.e. comprises exactly one joint, or is a double jointed horse bit, i.e. comprises exactly two joints. However, also multiple jointed horse bits, i.e. having more than two joints, are possible embodiments according to the present invention. Further, it is possible to have more than two side portions and/or more than one central portion. Preferably, two eyelet members are interlocked with play via their two eyelet bores to provide one joint. In case of two or more joints, two eyelet members are interlocked with play via their two eyelet bores to provide one joint, respectively.

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Preferably, both the cross-sectional width of the one eyelet member and the inner width of the eyelet bore of the other eyelet member are measured in the plane of the cross section. The cross-section preferably is a vertical cross section. Preferably, the plane of the cross-section extends in directions which are substantially perpendicular to the length axis of the shackle.

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In this connection the shackle preferably is in a stretched position and/or preferably in a position laid on a planar horizontal surface. Alternatively or additionally the cross-section refers to a position of the shackle where the inner surface of the one eyelet member mates or contacts the inner surface of the other eyelet member. The cross-sectional width can preferably be understood as a dimension measured in the plane of the cross-section in the range of one of the eyelet members, in particular in the range of one of the eyelet bores.

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As to the further general understanding of the present invention, the shackle generally extends in a length direction along the length axis of each of the

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two side portions and, if present, along a length axis of a central portion. This applies in particular when the bit is stretched. This overall longitudinal axis can extend as a straight and/or curved line. The shackle has an upper side related to the roof of the horse's mouth and a lower side related to the lower

5 jaw of the horse's mouth. Further, the shackle generally extends in a height direction which is perpendicular to the length direction and corresponds to the vertical direction.

Further, referring to the terms used in the present invention, the shackle can
10 also be designated as a mouthpiece. The side portions may also be designated as side parts or side arms and/or the central portion as a center part.

The side portions can have a curved shape along their length axes. Preferably, the curvature is convex such that the center of curvature lies below the
15 horse's tongue. Each side portion can have several adjacent or side-by-side sections having different but continuously merging curvatures. For example, the outer end can be curved concave, the inner end can be curved convex and the section in between can be curved convex and/or concave. Thus, the shackle as a whole can adopt a curved orientation in the horse's mouth.

20 Preferably, each side portion has an outer end with a hole for receiving a side ring and/or a side bar, in particular in such a manner as to allow the side ring (or side bar) to move freely, for connecting the reins to the horse bit. The axes of the two outer holes preferably define a plane, which is preferably horizontal. Preferably, the axes of the outer holes extend perpendicular to the
25 longitudinal axis of each side portion and/or to the longitudinal or length axis of the shackle.

In a further preferred configuration, the cross-sectional width of the eyelet
30 member substantially extends perpendicular to the longitudinal or length axis and/or in the plane defined by the two holes of the outer ends of the side portions.

Effects of the invention

One effect of the relationship between the cross-sectional width of the one
5 eyelet member and the inner width of the eyelet bore of the other eyelet
member is that **the range of rotation of at least one of the side portions
relative to the other side portions and/or relative to a possible central portion
between the two side portions is restricted or limited**. In other words, the
interdependence of the two cross-sectional dimensions serves as a rotation
10 restriction means in a certain range.

As a consequence thereof the horse cannot so easily raise the shackle to
push up the side portions of the bit with its tongue so that it can then be
pulled back along the mouth and then clamped between the pre-molars.
15 **However, as the range of free play within the mouth related to the tongue is
still possible, the side portions and/or the central portion can still interact with
the tongue depending on the commands given by the rider via pulling the
reins.**

20 The invention describes an improvement to single, double or multiple jointed
horse bits by acting to substantially remove an undesirable feature, namely
that of the horse lifting the bit with its tongue and translating it backwards in
the mouth to the regions where the wolf teeth and premolars lie.

25 The advantages include the reduction of damage to the teeth caused by the
chewing action a reduction therefore of the discomfort due to vibration-
induced acoustic shock and the provision of a more comfortable surface
where the bit meets the roof of the mouth.

30 In a yet further additional advantage the usefulness of the invention is further
emphasised when one realises that the additional problem of the horse
clamping the bit between the teeth is that when the bit material is somewhat

soft as in plastic horse bits this undesirable feature can lead to removal of material that if unchecked can lead to catastrophic failure of the mouthpiece.

5 The invention provides a means for restricting the upwards rotation of the side portions of a jointed horse bit to prevent it being translated backwards in the horse's mouth and thereby being clamped by the teeth.

10 The restriction in rotations upwards is provided by a progressive or abrupt widening in the cross section of one of the end sections of the two components forming the linked pair by the interlocking of their respective eyelets. The component possessing this widening feature hereafter alternatively can be designated as the "controlling part". As the external width of the end section of the controlling part increases along the vertical direction a critical width occurs where it matches the internal width of the eyelet bore of the other part
15 (side portion or central portion) which hereafter alternatively can be designated as the "controlled part".

Rotations of the controlled part relative to the controlling part are centred on the mating point between the two parts. When the controlled part of the
20 linked pair is induced to rotate around angles where the mating point is the sole contact point between the two parts there is free rotation. By controlling the vertical position of the critical width in the end section of the controlling part the range of angles that allow free rotation can be limited. What needs to be appreciated to solve this problem whilst retaining all the advantages of
25 joints having free play is that the angular range of free rotation of each of the two side portions required for directional and speed control preferably all lie within only a single quadrant of the hemisphere whose origin lies at the point where the eyelets interlock to form the joint. In other words, only a single quadrant of free rotation is required for directional and speed control.

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The hemisphere can be defined that is centred on the mating point or origin and which contains the full range of 3-dimensional angles into which free ro-

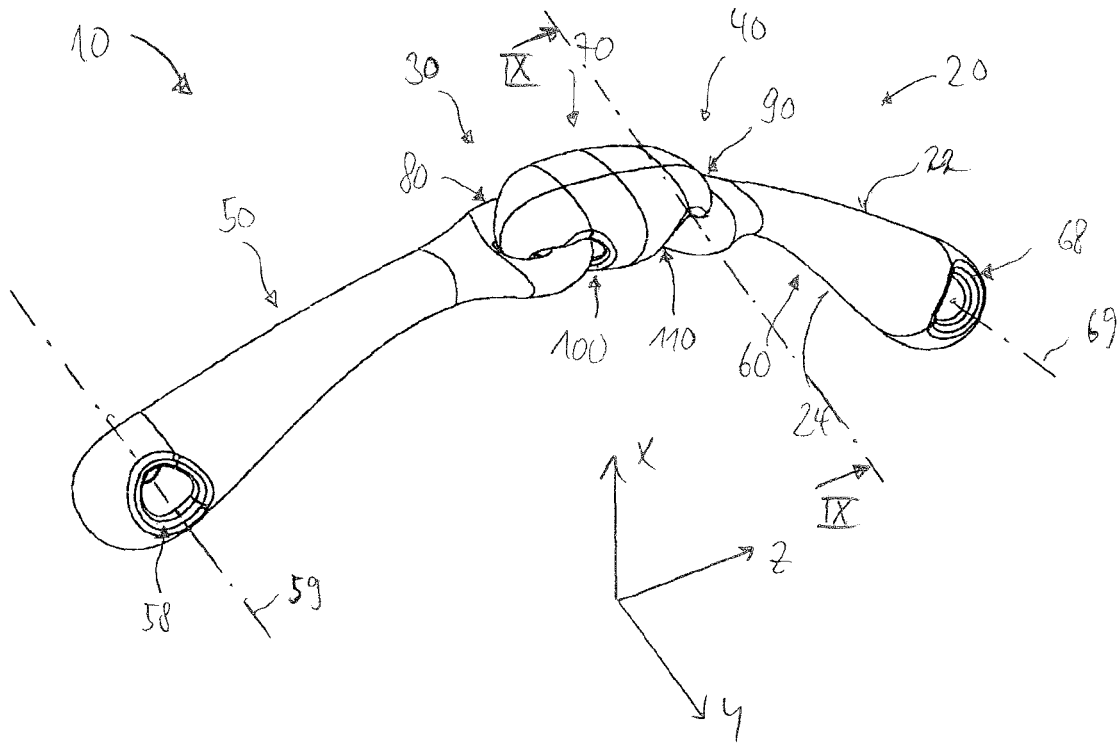


Fig. 3

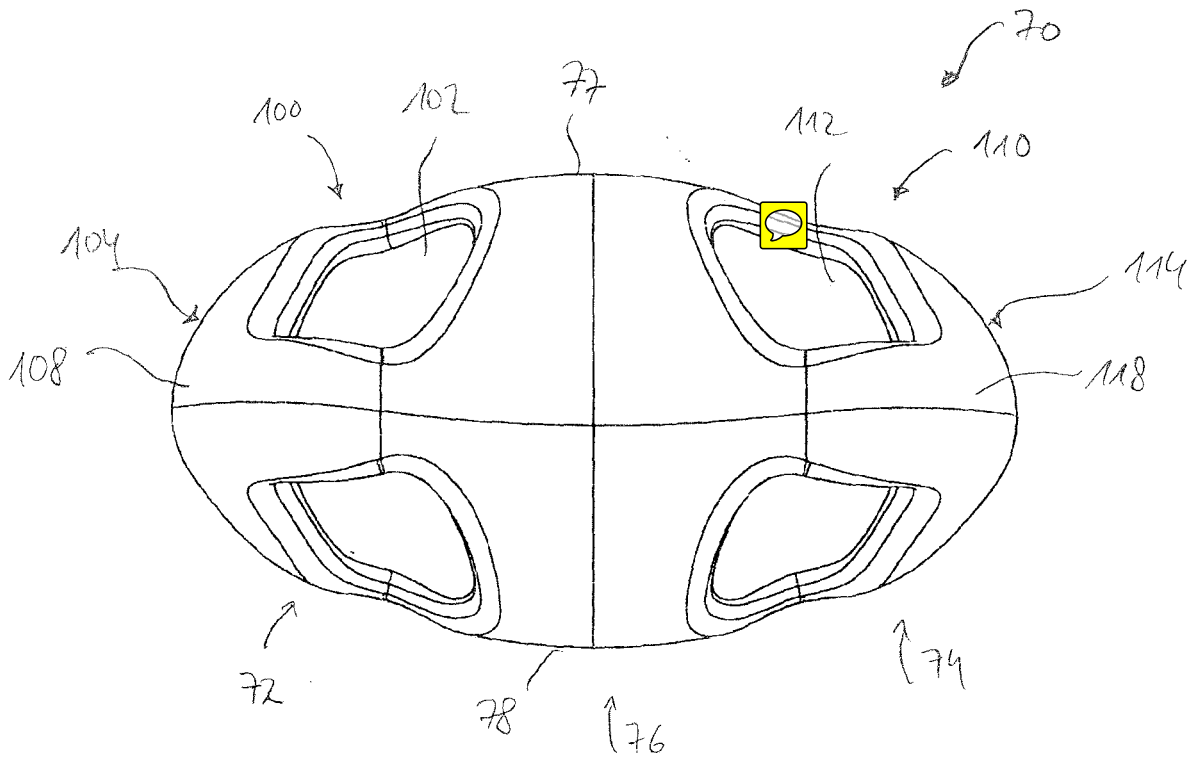


Fig. 4

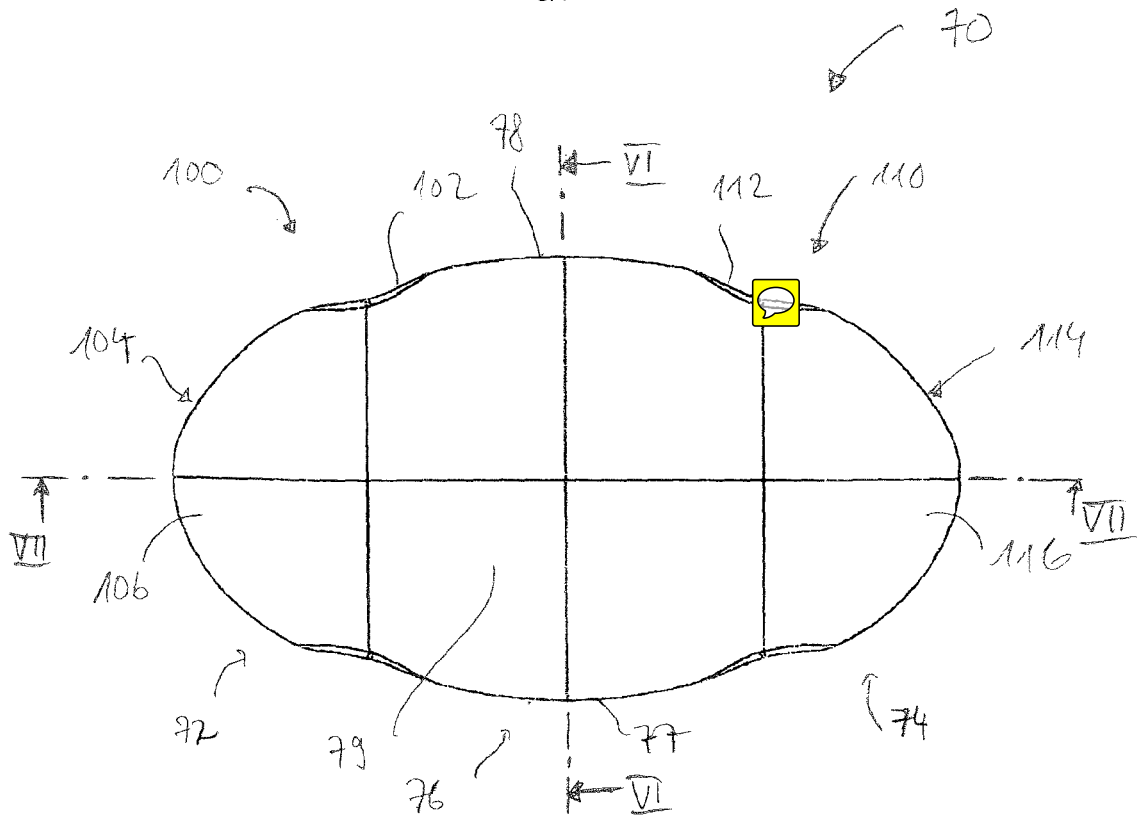


Fig. 5

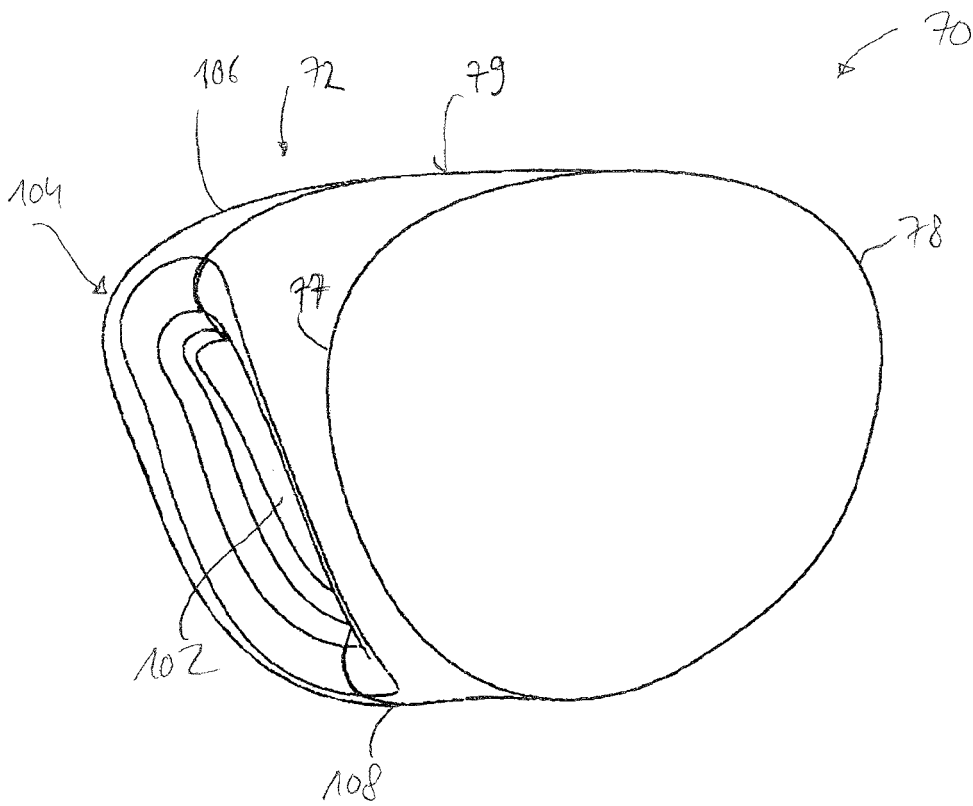


Fig. 6

