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(54) Device for swinging and rotating playing equipment

(57) The present invention is for a device by swinging and rotating playing equipment. Playing equipment of this kind usually have a pole where a swinging member is mounted at the top of the pole. By mounting with a combination of rotating shaft and universal joint a simultaneous swinging, swaying and rotating movement with great possibilities of variations is made possible. The object of the present invention is to provide means to limit the movements of the movable member. This is achieved by a movement limiting means (17, 18) positioned adjacent to the mounting means, preferably the movement limiting means (17, 18) follows along with the rotating movements of the equipment. The means comprise dampening element (17) made from rubber or rubber-like material and a contacting element (18) which is a rigid plate.

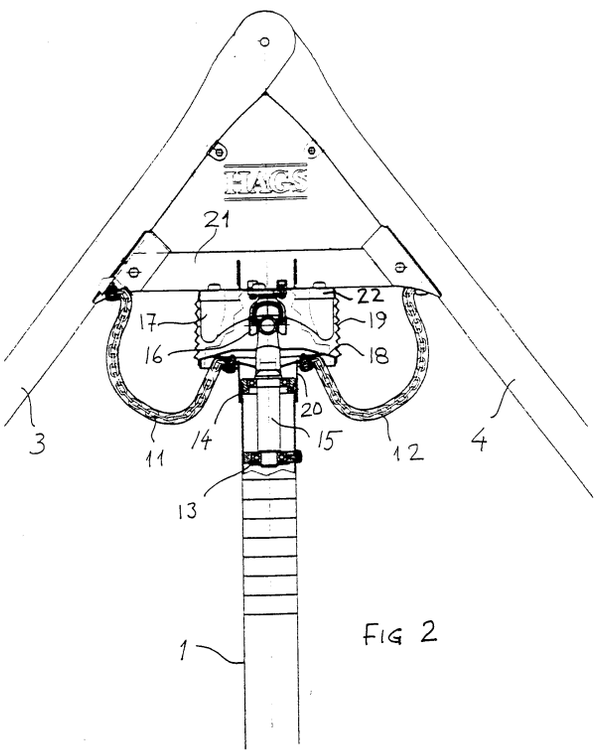

Fig 2

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Description

[0001] This invention is for a device for swinging and rotating playing equipment.

[0002] Playing equipment of the kind for which the invention applies usually have a centre pole or mast with a rocking member mounted to rotate and swing on the top of the pole. The rocking member may be described as being V-shaped pointing upwards and the suspension means at the top. By suspension in a combination of rotating shaft and universal joint, simultaneous rocking, swaying and rotating movements with great possibilities of variations are made possible. Usually this kind of playing equipment is set up outdoor with a bed of sand, rubber mat or the like.

[0003] For safety reasons the movements must be limited so the person using the playing equipment can not be injured thereby that one of the seats gets to close to the pole or too high up. When the playing equipment is used with a bed of sand then the sand is often displaced from the area where the feet of the players or the outer ends of the moving members get into contact with the bed, the more of the sand that is displaced the closer to the pole may the players get from which follows an increasing risk for injuries. For this reason there are movement limiting means mounted adjacent the universal joint. However, this brings with it sudden changes and blows to the moving member which is experienced as unpleasant and also causes wear and damages to the playing equipment, mainly the universal joint, which brings maintenance costs with it and also may be a safety hazard.

[0004] It is the object of the present invention to provide means to limit the movements of the moveable member without causing unpleasantness for the user or unnecessary wear of the device. The invention has the characteristic features mentioned in claim 1. Other embodiments of the invention has the characteristics which are disclosed in the other claims.

[0005] The objects are achieved with a playing equipment according to the invention for a rocking and rotating playing equipment having two arms which are fixedly connected together to an upwards pointing V-shape and which in a position of rest extend themselves from the connecting point outwards and downwards in a common vertical plane and at the point of connection are mounted on to a mounting means which allows both rotating motion and rocking motion and adjacent the mounting means there are movement limiting means which allow for wider movements at right angle to the common plane than within the plane. The mounting means allowing this kind of free rotating, swinging and swaying motion is a universal joint. In preferred embodiments of the invention the means for limiting of the movements follow along with the rotational movements of the device. The limiting means comprise a dampening element and a contacting element for the dampening element preferably the dampening element consists of rubber or rubber-like material and the contact element is a rigid plate. In another embodiment of the invention only one of the elements follow along with the rotational movements of the device most preferably the dampening element follows along in rocking movements. Also preferred is that the dampening element consists of an oval or elliptic pad of rubber or rubber-like material, a most preferred embodiment of this aspect is that the dampening element consists of several separate pieces of rubber or rubber-like material which are placed in a ring. Further the height of the dampening element is so adapted that its outer surface towards the contacting element is closer thereto in the common plane that in a plane at right angle thereto. The contact element is a plate having a convex surface turned towards the dampening element. The movement limiting elements have an oval or elliptic cross-section in a horizontal plane when in a position of rest.

[0006] The invention will below be described more in detail with reference to the example of embodiment which is shown in the enclosed figures.

[0007] Figure 1 is a side view of the playing equipment with the device of the invention.

[0008] Figure 2 shows the device of the invention.

[0009] Figure 3 is a top view of the playing equipment.

[0010] Figures 4-6 are different views of an element included in the device of the invention.

[0011] The playing equipment shown in figure 1 comprises a pole 1, the lower end of which is fixedly mounted to the ground or other basis at which the playing equipment is erected. At its top end the pole carries a moveable member 2 which may perform both rocking and rotating movements. In the figure the device is shown at its position of rest, unaffected by outside forces. The moveable member 2 has two arms 3, 4 which are joined or mounted together and which extend themselves outwards and downwards from the joint 5 which is the top point of the playing equipment. At each of the arms there is a seat 5, 7, a handle 6, 8 and a cushioning device 9, 10 which also forms a low back-rest at the seat. The movable part is mounted to the pole by means of a universal joint so that it may sway in all directions. In the rest position an imaginary common plane through the arms is in a vertical position. When the playing equipment is being used the movable member may turn so that the common plane is sloping relative to a vertical plane.

[0012] The mounting of the movable member to the pole is shown more in detail in figure 2 which is a partial cross-sectional view of the device. At the upper part of the pole there are two bearings 13, 14 which carry a shaft 15. A universal joint 16 is mounted at the top of the shaft and carries a crossbar 21 which in turn carries the arms 3, 4 of the playing equipment. A plate 18 which follows with the rotation of the shaft is fixedly mounted at the shaft below the universal joint. The plate has an upper, upwards convex part and a lower part at which a bushing 20 is mounted. The bushing, which extends it-

self a distance over the outside of the pole 1, catches the devices if the shaft breaks and it protects the bearings from dust and dirt. At the underside of the plate there are also fastening means for two safety chains 11, 12 the other ends of which are connected one to each of the arms 3, 4. Above the universal joint 16, preferably underneath the crossbar 21, a damping member 17 is mounted. A bellow 19 extends itself from the plate 18 upwards to the crossbar 21 and the mounting plate 22 of the dampening member and protects the enclosed parts from dust and dirt. The dampening element 17 preferably consists of a rubber pad and cooperates with the convex surface of the plate 16 so that the movement of the moving part of the playing equipment is limited.

[0013] The design of a preferred embodiment of the dampening element 17 is shown in the figures 4-6. The element is ring-shaped and in a horizontal plane it is in its entirety of oval or elliptic shape and the elastic, dampening member is preferably divided into to equal halves, one of which is shown in figures 4-6. The element has a flat side which is turned upwards towards the crossbar at which the element is mounted by means of a mounting plate 22. That side of the element 17 which is facing downwards towards the plate 18 is gently wave-shaped where each of the halves has a top point T which is situated in the cross-section plane of the long axis of the ellipse and two low points situsted at the short axis of the ellipse. The dampening element 17 and the corresponding contacting disc or plate 18 are of essentially the same elliptic or oval shape. Thereby that both them in a preferred embodiment of the invention follow along with the rotation of the shaft 15 they are always at the same vertical position relative to one another. Preferably the plate 18 is fixed relative to the shaft 15 while the upper element 17 is fixed relative to the upper part of the universal joint 16. Designing the dampening element in this way means that independent of the swaying and rotation of the arms 3, 4 they may in all positions get close to but not too close to the pole and so it is also prevented that any of the seats may reach to high up.

[0014] Rubber is preferred as the material of the dampening element, mechanical steel springs and the like have turned out to be less suitable. The special elastic and dampening properties of rubber give the the desired limitations of the movements without sharp throws or blows to the movements. Rubber also turns out to have a long life in this application. Other rubber-like materials such as thermoplastic polymers may also be used. Further variations or embodiments are possible within the frame of the inventive idea.

Claims

1. Device by swinging and rotating playing equipment having two arms (3, 4) which are fixedly connected together and which in a position of rest extend themselves from the connecting point outwards and downwards in a common vertical plane and at the point of connection are mounted on to a mounting means which allows both rotating motion and rocking motion characterized in that adjacent the mounting means there are movement limiting means (17, 18) which allow for wider movements at right angle to the common plane than within the plane.

2. Device according to claim 1 characterized in that the means (17, 18) for limiting of the movements follow along with the rotational movements of the device.

3. Device according to claim 1 or 2 characterized in that the means comprise a dampening element (17) and a contacting element (18) for the dampening element.

4. Device according to claim 3 characterized in that the the dampening element (17) consists of rubber or rubber-like material.

5. Device according to claim 4 characterized in that the contact element (18) is a rigid plate.

6. Device according to any of the claims 2-5 characterized in that only one of the elements follow along with the rotational movements of the device.

7. Device according to claim 6 characterized in that the dampening element (17) follows along in rocking movements.

8. Device according to any of the claims 3-7 characterized in that the dampening element (17) consists of an oval or elliptic pad of rubber or rubber-like material.

9. Device according to any of the claims 3-7 characterized in that the dampening element (17) consists of several separate pieces of rubber or rubber-like material which are placed in a ring.

10. Device according to any of the claims 3-7 characterized in that the height of the dampening element is so adapted that its outer surface towards the contacting element is closer thereto in the common plane that in a plane at right angle thereto.

11. Device according to any of the claims 5-9 characterized in that the contact element is a plate having a convex surface turned towards the dampening element.

12. Device according to any of the preceding claims characterized in that the movement limiting elements have an oval or elliptic cross-section in a horisontal plane when in a position of rest.

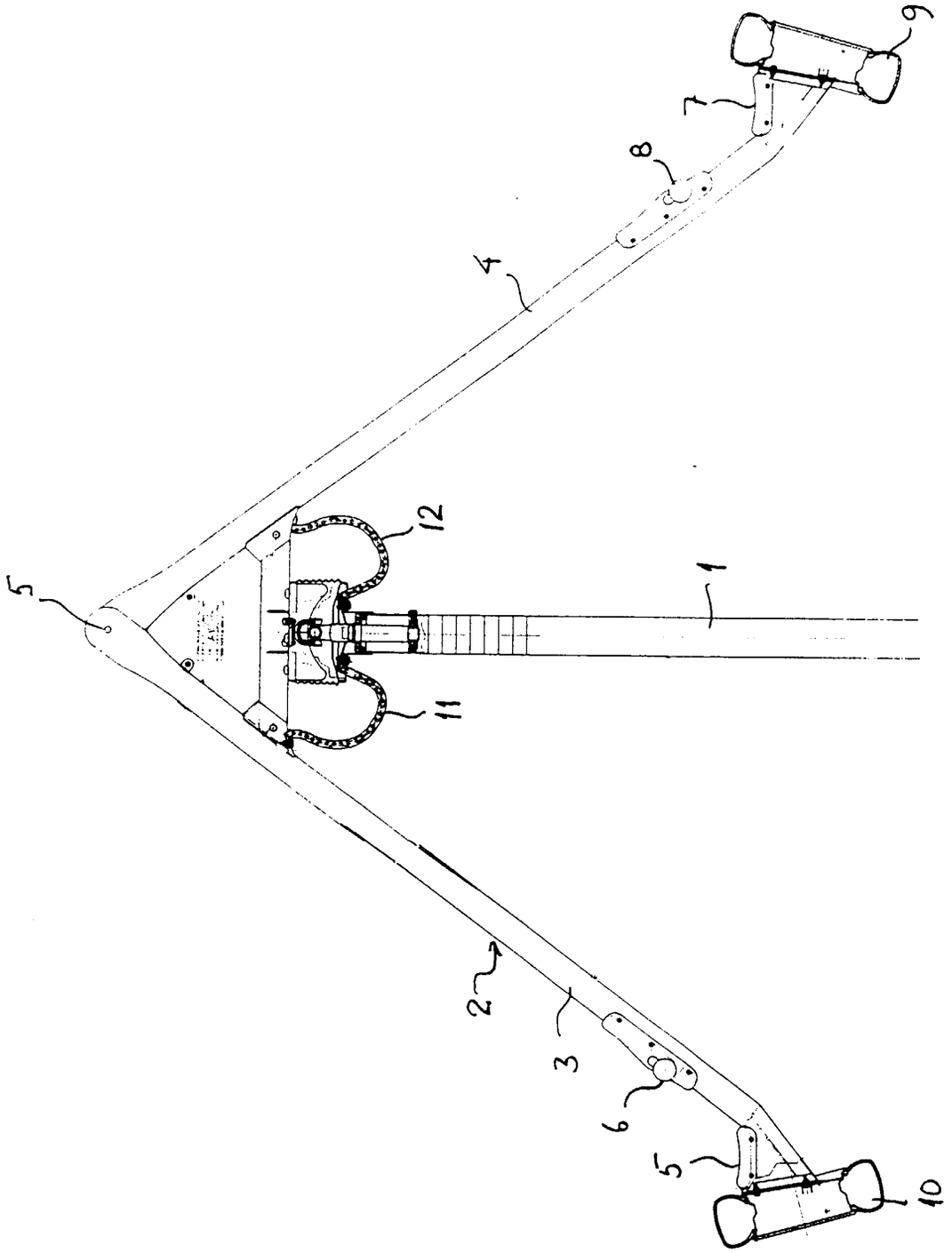

FIG 1

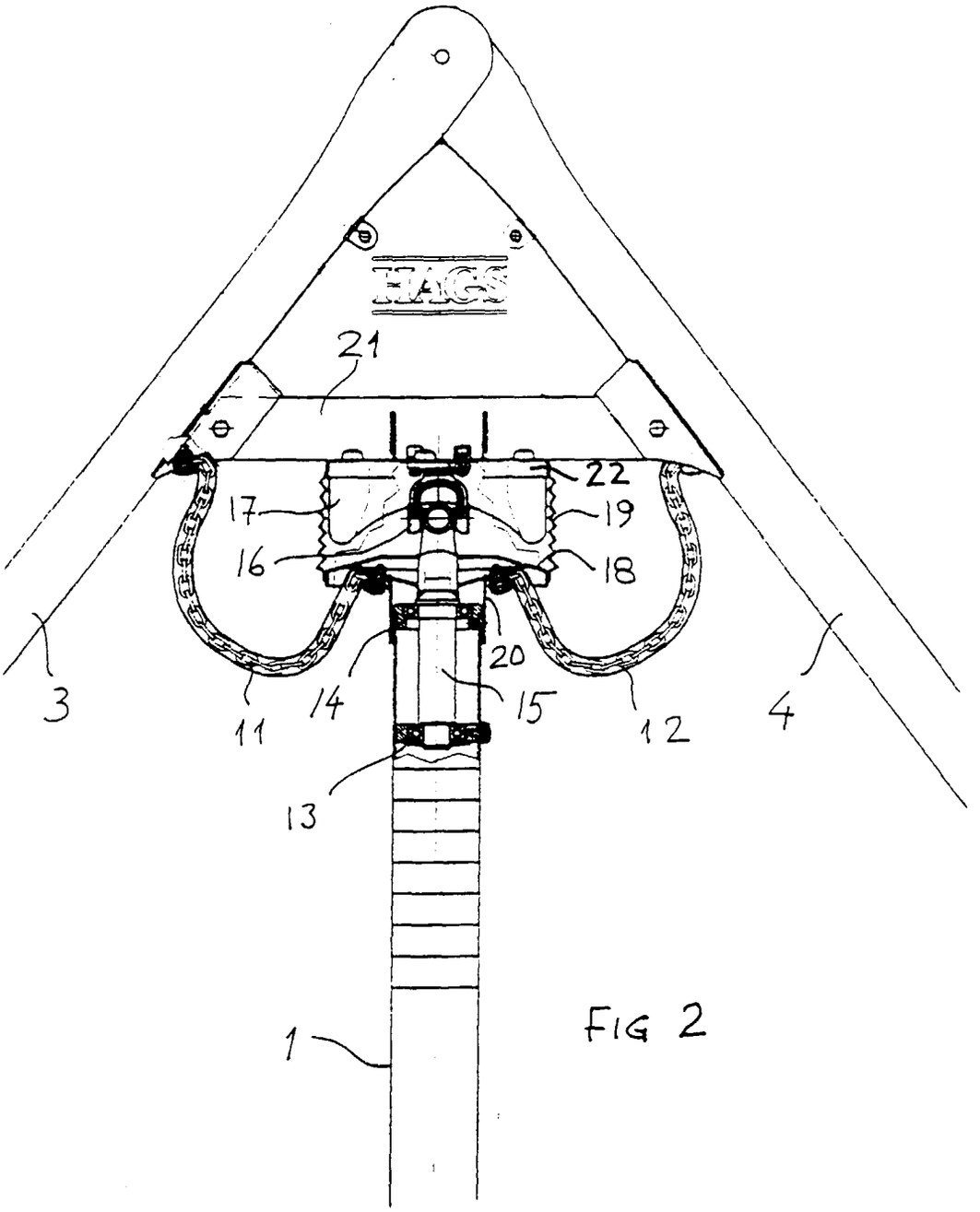

FIG 2

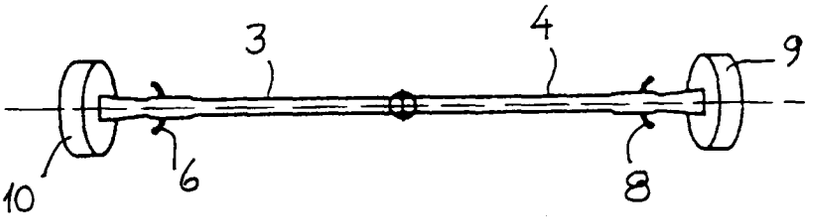

FIG 3

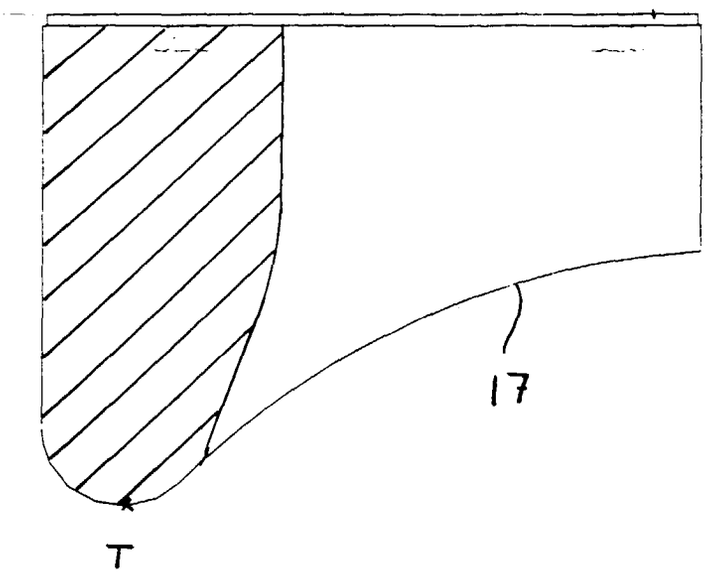

FIG 6

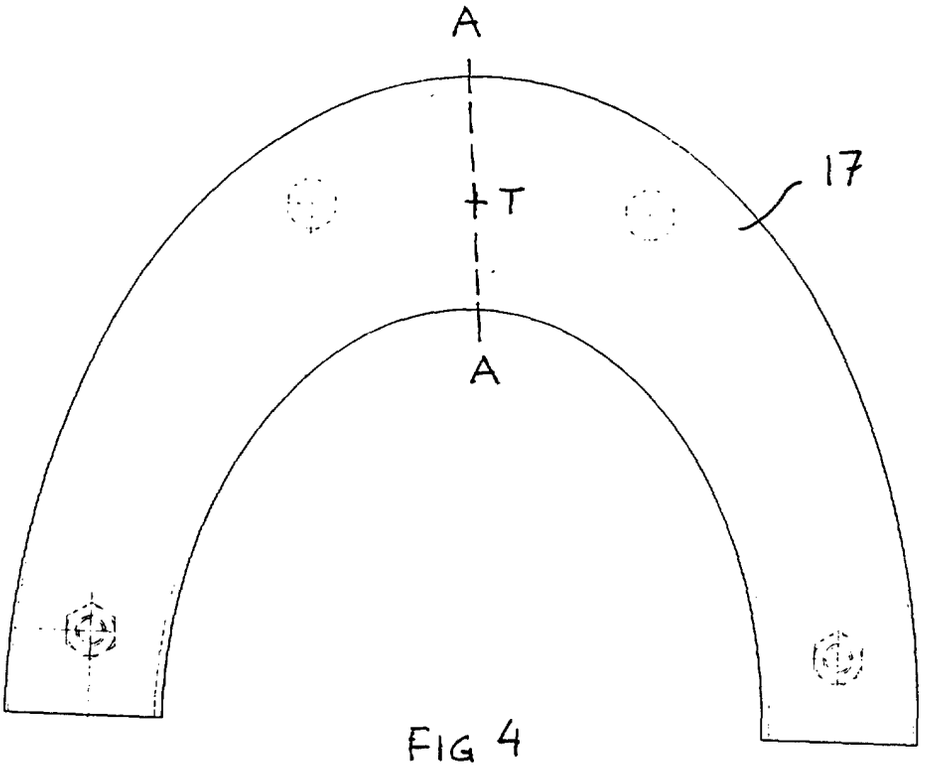

FIG 4

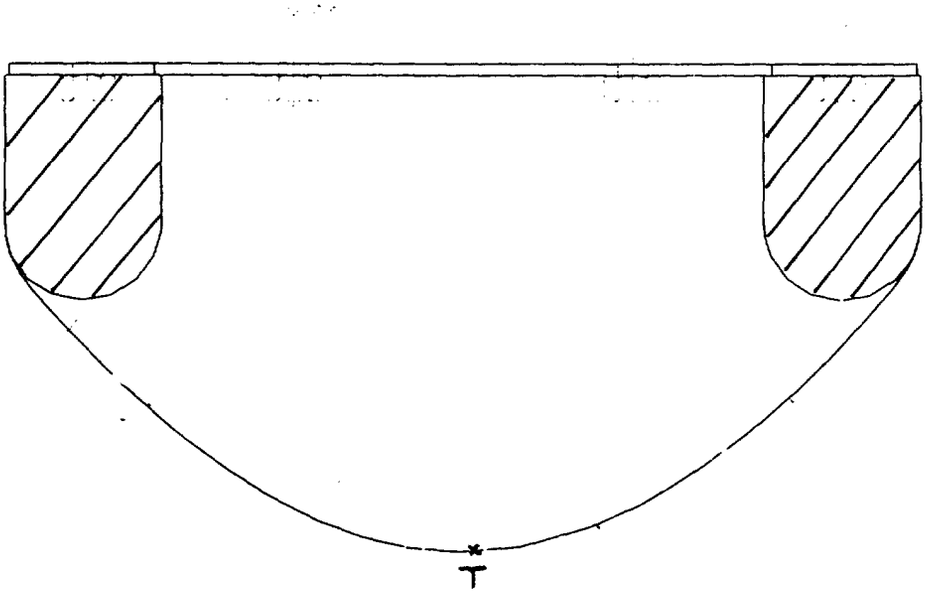

FIG 5