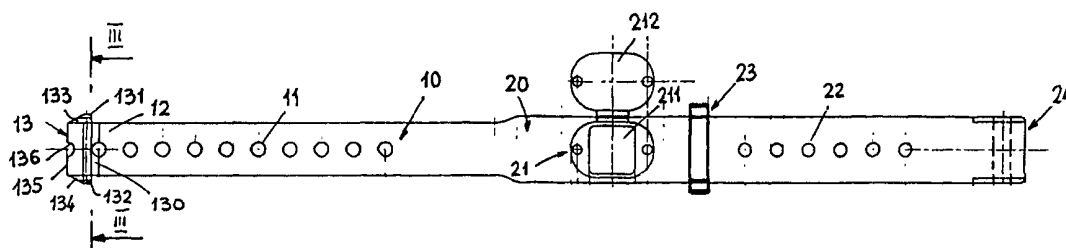




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(54) Title: IDENTIFICATION BRACELET AND FEEDING DEVICE FOR TRANSFERRING THEREOF TO DATA READING UNIT



(57) Abstract

The present invention is grounded on the problem, how to conceive appropriate assembly of a bracelet (1) or similar annular attaching requisite equipped by electronic data carrier as well as a feeding device (200) for transferring such bracelets (1) to appropriate electronic data reader, by which any unwilling removing the bracelet (1) should be prevented on the one hand, and on the other hand just single-hand setting-up the bracelet (1) or similar annular attaching requisite with appropriate looseness should be possible, and that simultaneously also just one-way collecting of the bracelets (1) or similar annular attaching requisites as well as positioning thereof in order to enable reliable reading of the electronic data should be ensured.

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**Identification bracelet and feeding device for transferring
thereof to data reading unit**

The present invention relates to identification bracelet or similar annular attaching requisite equipped by electronic data carrier, as well as to a device for feeding such bracelets and transferring them to appropriate electronic data reading unit. The identification bracelet as such may be generally manufactured either in form of a bracelet intended to use e.g. in swimming pools, or also e.g. in form of a collar for animals, or moreover like a watch-belt or generally even like any other attaching or clamping requisite foreseen for attaching certain object around another object of at least cylindrical shape. The bracelet or commonly such an attaching requisite comprises an electronic data carrier, e.g. a microprocessor or appropriate printed circuit, from which the data may be read by means of appropriate reading unit or reader, to which the bracelet as a constituent part of the said assembly may be brought in appropriate manner.

The present invention is grounded on the problem, how to conceive appropriate assembly of a bracelet or similar annular attaching requisite equipped by electronic data carrier as well as a feeding device for transferring such bracelets to appropriate electronic data reader, by which any unwilling removing the bracelet should be prevented on the one hand, and on the other hand just single-hand setting-up the bracelet or similar annular attaching requisite with appropriate looseness should be possible, and that simultaneously also just one-way collecting of the bracelets or similar annular attaching requisites as well as positioning thereof in order to enable reliable reading of the electronic data should be ensured.

In order to simplify, in the following description the term bracelet will be used exclusively. However it should be noted that the term bracelet means any attaching requisite either in form of a bracelet intended to use e.g. in swimming pools, or also e.g. in form of a collar for animals, or moreover like a watch-belt or moreover in general also like any other attaching or clamping requisite foreseen for attaching certain object around another object of at least cylindrical shape. Quite analogously, the term feeder will be used in order to characterize a device for feeding and transferring the bracelets to electronic data reading unit.

The stated technical problem has been successfully solved by means of an assembly according to the invention, whereas such assembly consists of an identification bracelet or similar annular attaching requisite equipped by an electronic data carrier, as well as to a device for feeding such bracelets and transferring them to the unit for reading electronic data.

The assembly consists of a feeder and a bracelet. The said bracelet comprises a narrow arm which is equipped by openings in equidistant arrangement and ended by an arresting part having two sidely asunder arranged protrusions and two with respect to these adjacent longitudinal grooves, as well as a wide arm which is ended by a guide eye and equipped by a storage consisting of an erosion and a cover and also by appropriate projections in equidistant arrangement, over which appropriate slide can be moved along the said wide arm. The said feeder comprises a housing onto which a cover is placed being driven by a motor and equipped by an antenna, while inside the said housing a pallet is arranged being equipped by a pivotable bottom and a circular antenna, by which both aforementioned motors for moving the cover and the pallet are electrically connected each to another in order to achieve their synchronized actuating.

The bracelet as such consists of the narrow arm which is equipped by the openings in equidistant arrangement and the arresting part having two sidely asunder arranged protrusions and two longitudinal grooves, as well as of the wide arm which is equipped by the guide eye and by the storage consisting of the erosion and the cover and also by appropriate projections in equidistant arrangement, over which appropriate slide can be moved along the wide arm.

Among others, the bracelet is characterized by that the height of the projections on the wide arm is at least slightly greater than the thickness of the narrow arm in the area of the corresponding openings. Furthermore, the guide eye of the wide arm is equipped by an opening, the width of which corresponds to the width of the narrow arm, and the transversal dimension of which corresponds to the thickness of the narrow arm. Besides, the slide is equipped by at least one opening, the width of which corresponds to the width of the wide arm, and the transversal dimension of which corresponds to the complete thickness of both arms of the bracelet. Moreover, the said slide comprises an arresting edge arranged close to the top surface of the wide arm and adjacent to the guide eye in the said opening, the width of which corresponds to the width of the wide arm, and the transversal dimension of which corresponds to the complete thickness of both arms of the bracelet.

A feeding device is characterized by a feeder having the housing onto which the cover is placed which is driven by appropriate motor and equipped by appropriate antenna, while inside the said housing appropriate pallet is arranged which is equipped by corresponding pivotable bottom and appropriate circular antenna. Both motors for moving the cover and simultaneously also the pallet are

electrically connected each to another in order to achieve their synchronized actuating.

The invention will now be described by means of embodiments of a bracelet and appropriate feeder, which are shown in the accompanied drawings, where

Fig. 1 is a top view of a bracelet in its disjointed state before its use;

Fig. 2 is a partial cross-section of the bracelet according to Fig. 1 along its central longitudinal plane;

Fig. 3 is a cross-section of the bracelet in the plane III-III according to Fig. 1;

Fig. 4 is a top view of a jointed bracelet;

Fig. 5 is a cross-section of the bracelet in a plane V-V according to Fig. 4;

Fig. 6 schematically illustrates a feeder shown in its front view; and

Fig. 7 is a top view of a feeder according to Fig. 6.

Bracelet 1 as shown in Fig. 1 - 5 is in principle formed as a tape or a belt and is moreover in this case manufactured of plastics. The bracelet 1 comprises a narrow arm 10 and a wide arm 20.

On the narrow arm 10 there are several openings 11 in equidistant arrangement, while on the end area 12 of the narrow arm 10 there is an arresting part 13. The last is shown in Fig. 3 in more detail. The arresting part 13 comprises a transversally arranged stair 130 as well as two projections 131, 132 protruding sidely asunder and having longitudinally grooves 133, 134. The arresting part 13 is moreover on its end edge equipped by a centrally arranged semicircular recess 136, which diameter corresponds to diameter of the aforementioned openings 11.

On the wide arm 20 close to the narrow arm 10 there is a storage 21 serving for receipt of a not-shown microprocessor or any other corresponding assembly for memorizing and processing electronic data in order to enable identification of the bracelet 1. Further, several projections 22 are available on the wide arm 20 in equidistant arrangement. Still further, on the wide arm 20 there a slide 23 is placed and quite on the end of the wide arm 20 there is a guide eye 24.

The storage 21 comprises an erosion 211 and a cover 212 serving for covering the said erosion 211.

Projections 22 are as said before arranged equidistant each to another, while the arrangement thereof which means their thickness respectively by the discussed embodiment their diameter as well as the distances therebetween, fully corresponds to the arrangement (diameter and distances) of the openings 11 on the narrow arm 10 of the bracelet 1. However, it is important that the height of the projections 22 is higher than the length of the openings 11 in their axial direction respectively than the thickness of the narrow arm 10 in the area of the said openings 11.

By the present embodiment the slide 23 is equipped by two longitudinal openings 231, 232 (Fig. 4). Dimensions of the greater opening 231 are defined in such manner, that its width corresponds to the width of the wide arm 20 and its height to the totally thickness of both arms 10, 20 of the bracelet 1. The greater opening 231 further comprises an arresting edge 233, which is arranged on the side adjacent to the guide eye 24 and lies on the upper respectively outer side of the corresponding arm 20.

The guide eye 24 is conceived to receive the narrow arm 10 and comprises to this aim an opening 240, the width of which corresponds to the width of the narrow arm 10, while its transversal dimension corresponds to the thickness of the bracelet 1 in the area of its narrow arm 10.

As soon as the bracelet 1 in its original form as shown in Fig. 1 and 2 is bent into annular form, the arresting part 13 of the narrow arm 10 is pushed into the greater opening 240 of the guide eye 24 on the wide arm 20, and thereafter also through the greater opening 231 of the slide 23. During such pushing of the arresting part 13, the side projections 131, 132 of the part 13 are moved inwards in direction each towards another. Both arms 10, 12 of the bracelet 1 are thus bent in form of annular ring and are moreover partially overlapped, since the narrow arm 10 is placed onto the wide arm 20.

Thanks to protrusions 131, 132, the bracelet 1 is unable in such a state to be disjointed. When the slide 23 is placed adjacent to the guide eye 24, the narrow arm 10 can be slid freely along the outer surface of the wide arm 20, while the openings 11 are passing over respectively near the projections 22. In such manner the bracelet 1 placed on the hand of the user can be moved and moreover also its looseness can be settled. In certain states with respect to overlapping the openings 11 and the projections 22 - when the projections 22 partially protrude outwards from the openings 11 - the slide 23 can be pressed in the transversal direction and moved in such a pressed state in the longitudinal direction respectively in the circular direction of the bracelet 1 towards to the arresting part 13 of the narrow arm 10 of the bracelet 1. The consequence of such a movement is arresting of openings 11 and projections 22 on the certain length of the circumferential area of the bracelet 1 between the slide 23 and the guide eye 24. As soon as the said

pressing the slide 23 in the transversal direction is finished, the arresting edge 233 of the slide is leant behind that appropriate part of the closest projection 22, which protrudes outwards from the corresponding opening 11 of the narrow arm 10 of the bracelet 1. In such a state the projection 22 lying closest to the arresting part 13 of the narrow arm 10, is partially inserted into the semicircular recess 136 available on the end area 135 of the part 13.

A feeder consists of a housing 200 over which a slidable cover 201 is placed, while inside the said housing there is a pallet 202 having a pivotable bottom 2020 which can be turned over in certain situation. The said cover 201 can be moved by means of a motor 203 and a corresponding mechanism, which are not separately shown in the enclosed drawing, which means from its left position with respect to Fig. 1 into its right position as illustrated in a symbolic manner in Fig. 6 by means of essentially thinner lines. Movement of the pallet 202 driven also by means of a motor 204 and a corresponding not-shown mechanism is synchronized with the said movement of the cover 201.

The cover 201 comprises an antenna 205, while another antenna 206 is placed inside the housing 200 in the area of the pallet 202 (on the right side with respect to Fig. 6). The last mentioned antenna 206 is annular or circular antenna which is attached to the said pallet 202, Moreover, in the Fig. 7 also the bracelet 1 is shown, which is however illustrated symbolically by means of a curved ring.

As soon as the bracelet 1 is brought from outside (e.g. from the left side in accordance to Fig. 6) adjacent to the cover 201 of the feeder, appropriate signal from the bracelet 1 is received and detected by the antenna 205. This leads to actuating the motors 203, 204. The first motor 203 opens the cover 201 and moves

it in a direction towards the right according to Fig. 6. Another motor 204 moves the pallet 204 in appropriate direction (towards the left according to Fig. 6). In such a state the cover 201 is therefore opened, so that the bracelet 1 can be put into the housing 201 namely on the pallet 204. Afterthat the motor 203 is actuated again in order to return to its original position and close herewith the cover 201. Identification of the bracelet 1 is executed by means of antenna 205, and upon moving the pallet 202 towards corresponding reader also reading of the information available on bracelet 1 is possible, whereupon thanks to pivotable bottom 2020 of the pallet 202 the bracelet 1 is stored into appropriate container, which is also not shown.

Synchronized actuating of the pallet 202 and the cover 201 makes removing the bracelet 1 from the pallet 202 during reading appropriate information thereon quite impossible. Moreover, the pivotable bottom 2020 is conceived in such a manner that when inserting any other objects except the bracelet of strictly defined dimensions and weight, the bottom is turned over immediately in order to refuse such an object and to direct it into another container.

Assembly of a bracelet 1 equipped by an electronic data carrier or of a similar annular attaching requisite as well as a device for feeding such bracelets or attaching requisites to appropriate reading unit therefore prevents the bracelet to be removed in unwilled manner on the one hand, and on the other hand enables single-hand setting up the bracelet 1 or similar annular requisite with appropriate looseness, and moreover ensures one-way deposition and appropriate positioning of the bracelet 1 or similar annular requisite and thereafter also reliable reading the electronic data thereon.

PATENT CLAIMS

1. Identification bracelet with an electronic data carrier or a similar annular attaching requisite, and feeding device for transferring such bracelets to the electronic data reading unit, wherein

- a bracelet (1) comprises a narrow arm (10) which is equipped by openings (11) in equidistant arrangement and ended by an arresting part (13) having two sidely asunder arranged protrusions (131, 132) and two to these adjacent longitudinal grooves (133, 134), as well as a wide arm (20) which is ended by a guide eye (24) and equipped by a storage (21) consisting of an erosion (211) and a cover (212) and also by appropriate projections (22) in equidistant arrangement, over which appropriate slide (23) can be moved along the wide arm (20); and

- a feeder comprises a housing (200) onto which a cover (201) is placed being driven by a motor (203) and equipped by an antenna (205), while inside the said housing (201) a pallet (202) is arranged being equipped by a pivotable bottom (2020) and a circular antenna (206), by which the motors (203, 204) for moving the cover (201) and the pallet (202) are electrically connected each to another in order to achieve their synchronized actuating.

2. Bracelet according to Claim 1, characterized by that it consists of the narrow arm (10) which is equipped by the openings (11) in equidistant arrangement and the arresting part (13) having two sidely asunder arranged protrusions (131, 132) and two longitudinal grooves (133, 134), as well as of the wide arm (20) which is equipped by the guide eye (24) and by the storage (21)

consisting of the erosion (211) and the cover (212) and also by appropriate projections (22) in equidistant arrangement, over which appropriate slide (23) can be moved along the wide arm (20).

3. Bracelet according to claim 2, characterized by that the height of the projections (22) on the wide arm (20) is at least slightly greater than the thickness of the narrow arm (10) in the area of the openings (11).

4. Bracelet according to claim 2, characterized by that the guide eye (24) of the wide arm (20) is equipped by an opening (240), the width of which corresponds to the width of the narrow arm (10), and the transversal dimension of which corresponds to the thickness of the narrow arm (10).

5. Bracelet according to claim 2, characterized by that the slide (23) is equipped by at least one opening (231), the width of which corresponds to the width of the wide arm (20), and the transversal dimension of which corresponds to the complete thickness of both arms (10, 20) of the bracelet (1).

6. Bracelet according to claim 5, characterized by that the slide (23) comprises an arresting edge (233) arranged close to the top surface of the wide arm (20) and adjacent to the guide eye (24) in the said opening (231), the width of which corresponds to the width of the wide arm (20), and the transversal dimension of which corresponds to the complete thickness of both arms (10, 20) of the bracelet (1).

7. Assembly of a bracelet and a feeding device according to Claim 1, characterized by that it comprises a feeder having the housing (200) onto which the

cover (201) is placed which is driven by appropriate motor (203) and equipped by appropriate antenna (205), while inside the said housing (201) the pallet (202) is arranged which is equipped by corresponding pivotable bottom (2020) and appropriate circular antenna (206), by which the motors (203, 204) for moving the cover (201) and simultaneously also the pallet (202) are electrically connected each to another in order to achieve their synchronized actuating.

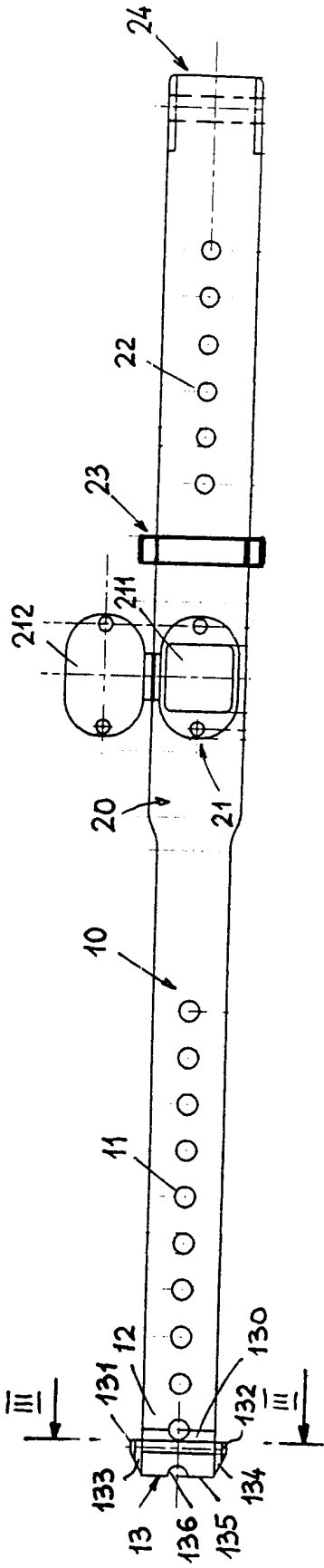


Fig. 1

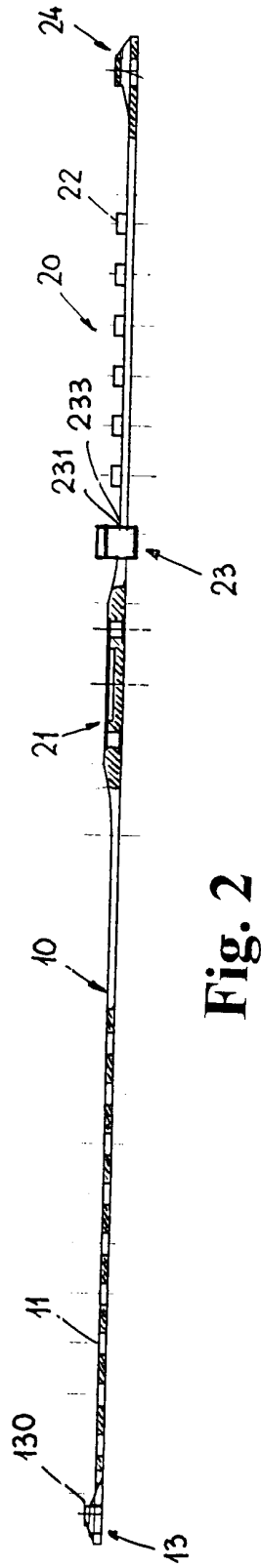


Fig. 2

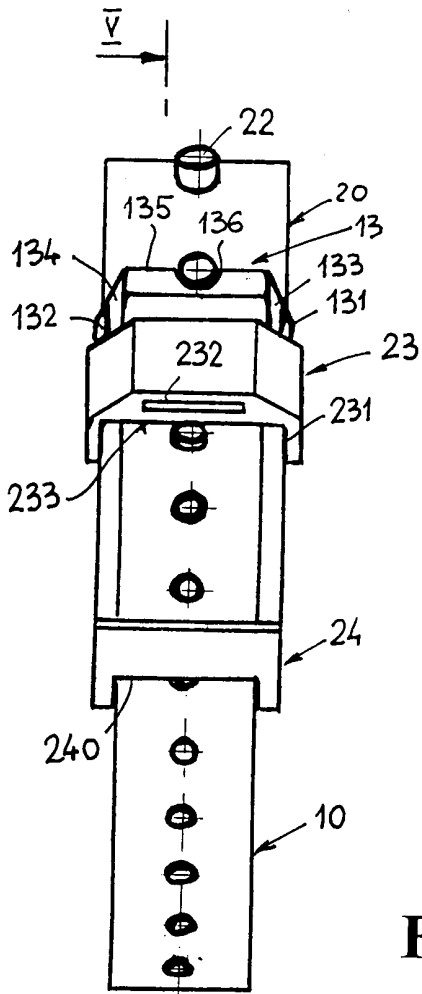


Fig. 4

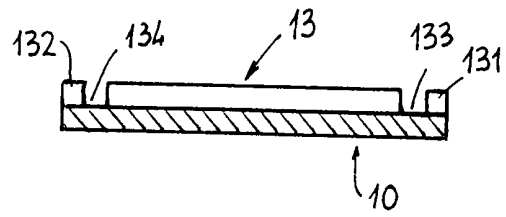


Fig. 3

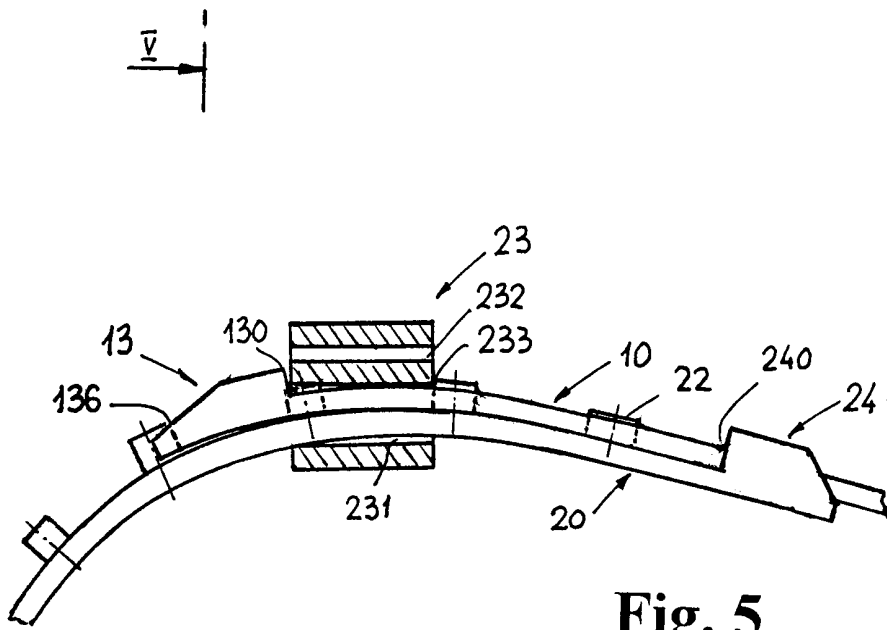


Fig. 5

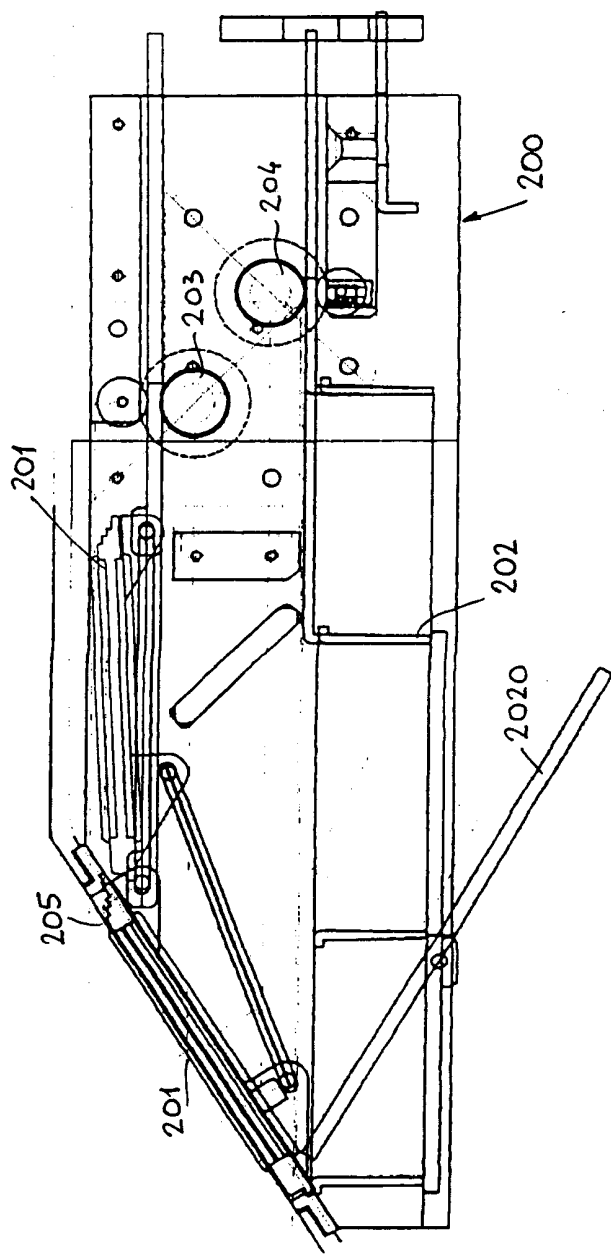


Fig. 6

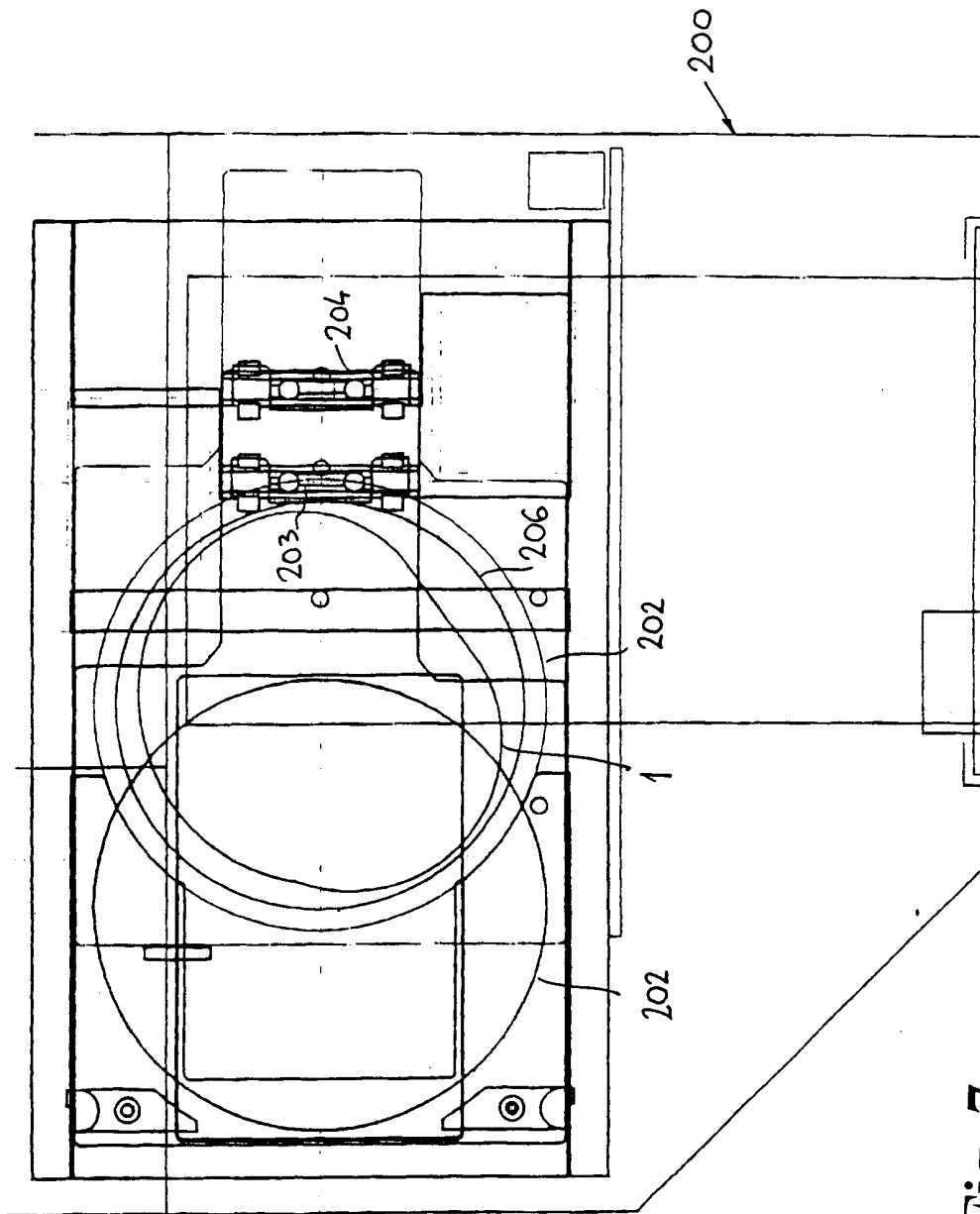


Fig. 7