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(54) **Title:** BICYCLE LUGGAGE CARRIER SYSTEM

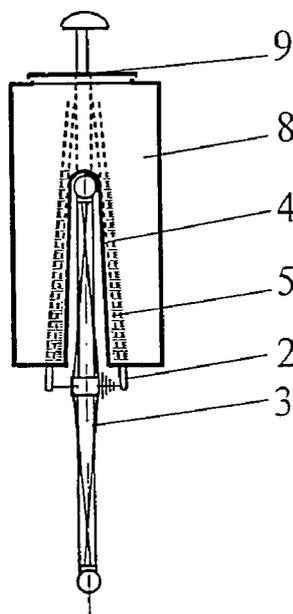


FIG. 2

(57) **Abstract:** The subject of the invention is a bicycle luggage carrier system, consisting of different racks that can be placed on two sides of the back wheel of the bicycle, respectively above the wheel, and they are preferably fixed onto the back fork of 26-28" size bicycles of rigid frame, or on the back fork of electric mopeds. Fixing can be adjusted universally to the measurements of the frame. The type of the bordering sidewalls can be chosen according to the requirements of transport. The bicycle luggage carrier system according to the invention fixed onto the back frame part of the bicycle with fixing elements, formed to follow the arc of the wheel. The bicycle luggage carrier system is characterized by that, the luggage carrier system has a saddle-like central element (4), which has a part extending towards the wheel (5) from the back frame (2) of the bicycle (1) as well, its side plane extends as far as the distance ensuring the turning of the wheel (3), the binding, fixing elements (6) to the back frame (2) of the bicycle (1) are placed on it, as well as such connecting elements (7) which connect the outer bordering elements (8) creating the space of the rack to the central element (4).



WO 2009/144518 A1

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Bicycle luggage carrier system

The subject of the invention is a bicycle luggage carrier system, consisting of different racks that can be placed on two sides of the back wheel of the bicycle, respectively above the wheel, and they are preferably fixed onto the back fork of 26-28" size bicycles of rigid frame, or on the back fork of electric mopeds. Fixing can be adjusted universally to the measurements of the frame. The type of the bordering sidewalls can be chosen according to the requirements of transport.

In the state of the art the G 87 09 070.8 utility model description makes known a solution similar to the invention, which consists of a box with a lockable lid on the top placed as a saddle on two sides and above the fender on the back wheel of the bicycle. The invention consists of the rack-box placed as a saddle and fixed directly to the frame and of a supplementary support structure decreasing the load on the frame with a stay-rod.

In the solution made known in it, the rack-box is fixed on the outer side of the fork, its inner opening is adapted to the widest fork. The drawback is that it makes use neither of the space occupied by different brake solutions nor the space towards the wheel.

Another type of rack is made known by the DE 2941 189 patent publication. The rack described by this is fixed to the axle of the back wheel and the fixings can be reached from the inside of the rack only. The rack is placed on the back wheel as a saddle, following the arched shape of the wheel.

The rack has a lid, opening backwards, and the inside part consists of vertical or slanting formed planes. The full rack-box is placed outside the bicycle frame. It is also possible to make a back child's seat in the rack, with the lid fixed in open state serving as the back. The drawback of the solution described is, that the rack makes use of the space only outside the frame, and it is necessary to empty the rack to take it off.

The task to be solved by the invention:

When I worked out the the invention, my aim was to develop a rack system, that makes use of the unused, dead spaces and can be made with outer bordering sidewalls suitable for various purposes and the walls can be exchanged.

The solution of the set task:

When working out the solution I was guided by the inventive idea, that if the space between the frame and the wheel is made use of, than the rack of identical outer dimension can be of bigger volume than the ones in the state of the art. Moreover I realized, that it is possible to put several rack-space of various shapes on a central element fixed to the back frame of the bicycle if the proper connecting elements are placed on the central part, so in case of various cargos, eg. hiking equipment, cooled drinks, live animals, etc., an appropriate rack can be chosen.

I have achieved the set aim by creating such a bicycle rack system, which is fixed to the back frame of the bicycle with fixing elements, it is shaped following the arch of the wheel and it is characteristic of the solution, that the rack-system has a saddle-like central element which also has a part stretching towards the wheel from the back frame part of the bicycle, its side-plane stretches as far as the distance ensuring the turning of the wheel, the connecting, fixing elements to the back frame part of the bicycle, as well as the connecting element - which help link the outer bordering elements providing the space of the rack to the central element - are placed on it.

According to one of the preferable realizations, the outer bordering elements are shells ensuring a box-like space with a locker on top, which are connected to the central element and each other as well, so creating a connected, closed suitcase-like rack-box.

According to another preferable realization the connecting elements can be welds or stickings or molding, so a continuous rack can be achieved.

According to another preferable realization the lid can be taken off and can be opened sideways, it is connected to one of the shells by half hinges and it is closed by lockable clamp against theft.

According to another preferable realization on the bottom of the connected outer bordering elements there are at least two rolls, on the upper part there is a pull handle fixed.

According to another preferable realization the material of the outer bordering element is of good thermal insulating value preferably of sandwich structure, on the outside thin waterproof plastic, inside cardboard paper shaped to form, or foamed plastic with inserts or with other stiffening loadbearing wall lining, wall reinforcing insert.

According to another preferable realization the outer bordering elements can be folded along the creasing lines and this way they can be fixed, when unfolded, then they can be stiffened with separation walls that can be inserted.

According to another preferable realization the outer bordering element is a basket or grid.

Also according to another preferable realization the outer bordering element consists of flexible sheets fixed on the bottom, which are fixed to a frame that can be connected partly to a frame that can be connected to the central element, partly they can be pulled together with a contracting strap.

According to another preferable realization the outer bordering element is a textile rack, which is fixed on the sides to a frame that can be connected to the central element.

According to another preferable realization the central element can be independently used as a rack, and bags, packages can be fixed on it with rubber bands or slings.

According to another preferable realization the central element can be made out of one piece, shell-like, but it can be a grid support, or basket-like, its material can be plastic or/and metal, and the combination of these.

According to another preferable realization, among the fixing elements, there is a lengthwise adjustable plate at the upper fixing element fixed to the central element with connecting elements, so at the end of the plate there is a saddle profile of reverse „U" shape leaning against a plug fixed to the back frame, the fixing of which takes place with two clamps in such a way that the plug is fixed to an arched plate each with the help of a distance piece, the fixing of the plate can happen with the help of two or four screws, but in given case, when the fixed extension is sufficient, then it can be fixed with rivets.

The solution according to the invention is set forth furthermore by the enclosed drawings in details where:

The Fig 1 shows the placing of the rack according to the invention in side-view,

The Fig 2 shows the A-A section of Fig 1,

The Fig 3 shows the central element of one of the realizations of the invention in side-view,

The Fig 4 shows the B-B section of Fig 3, enlarged,

The Fig 5 shows the upper fixing of the central element in section,

The Fig 6 shows one of the realizations of the lower fixing of the central element,

The Fig 7 shows another realization of the lower fixing of the central element in side-view,

The Fig 8 shows the spatial drawing of the box-like realization of the invention,

The Fig 9 shows the suitcase-like realization of the invention rollable on four pieces of rolls,

The Fig 10 the shows suitcase-like realization of the invention rollable on two pieces of rolls,

The Fig 11 shows the invention in folding form, in the state of partial folding,

The Fig 12 shows the invention in folding form in side-view,

The Fig 13 shows the realization of the invention as a basket, or grid-like shape,

The Fig 14 shows the realization of the invention when bordered with flexible plates,

The Fig 15 shows the realization of the invention as a textile rack,

The Fig 16 shows the C-C section of the Fig 15., enlarged.

The Fig 1 shows the placing of the rack according to the invention in side-view. The rack according to the invention is placed beside and above the wheel 3 and fixed to the back frame 2 of the bicycle 1. It can be seen well in the figure, that there is enough legroom for the pedalling leg in such a way, that the outer bordering element 8 of the rack bends slantwise on the side of the leg to the back frame 2. The outer bordering element 8 of the rack can extend backwards as far as the end of the wheel 3 and upwards up to the saddle. It can be seen as well, that an extension makes use of the space above the shoe brakes as well as the space between the saddle and bends towards the back frame 2 ensuring space for the thighs of the pedalling legs.

The space available on bicycles beside and above the back wheel 3 is limited by the wheel 3, the pedalling feet, the cyclist's thighs, the saddle and the brake, whereas the extension upwards is limited by the requirement of keeping the center of gravity low.

The pedalling feet need max.400 mm space backwards from the axle of the connecting rods calculating with 170 mm for the widespread size of the connecting rod and maximum shoe size 47. An arched space bordered by a max.400mm radius arc, depending on the shoe size, or a forward leaning space of 60° is needed for the pedalling feet.

The heels of the pedalling feet move 100-130 mm from the lengthwise axle of the bicycle, therefore it is preferable to form the front and bottom walls of the outer bordering element (8) of the rack slanting, possible arched and slanting backwards at an angle of 40°-60° to the lengthwise axle of the bicycle (1) at the height of the pedalling feet to improve use of space.

During riding the space taken by the thighs, considering the straddling measured at the pedals, extends from the saddle tube at 45° from the lengthwise axle of the bicycle backwards slanting-arching.

The data of the possible making use of the space below the saddle and above the brake of the bicycle are as follows:

The space required by the saddle starts from the saddle tube rising from the bottom upwards at 30°. The space for the back brakes is 40 mm from below the tyres upto 130

mm above the tyres measured lengthwise of the back fork, and extends to max. 170 mm along the length of the back fork, max. 45 mm in depth and max. 150 mm in width.

The Fig 2 shows the A-A section of the Fig 1. It can be well seen the solution reflecting the essence of the invention, ensuring additional space. The spokes of the wheels 3 are uniformly 60 mm wide on the widest place and the width gradually decreases towards the tyres on every bicycle 1. The tyres extend to 2" width which equals 50.8 mm in case of bicycles 1 for everyday use. At the back frame 2 of the bicycle 1 the biggest lower width of the forks is 120-160 mm. Calculating with a 5 mm gap for adjusting between the fork and the wheel 3, a space of 50-90 mm is left to be used. In case of a rack designed for the widest back fork, this can be a useful space of 90 mm deep. We call this space (marked by hatch) the part extending towards wheel 5 meaning 6-9 litre additional space.

The Fig 3 shows the central element of one of the realizations of the invention in side-view. It is characteristic of every bicycle 1 frame, that at the back frame 2 from the back axle to the brake fixing, adjusting to the tyres, there is free surface of 200-250 mm suitable for fixing. The fixing elements 6 according to the invention are placed here, fixing the central element 4 of the rack system above and below the brake.

The upper fixing element 6a (see later as well) is suitable for hanging the central element 4 on it until the lower fixing elements 6b are tightened. The central element 4 is essentially similar to a mudguard, with a so-called skirt-guard as well (earlier this was a net). On the rims and side of the central element 4 on optional spots, connecting elements 7 can be placed, to which the outer bordering elements 8 can be connected, resp. fixed. The fixing nose 36 and the fitting zone 10 are such connecting elements 7, namely on the spots where the outer bordering elements 8 fit it is preferable to form fitting zones 10 of „U" cross-section, in which flexible element 24 is placed. The outer bordering element 8 is tightened to this by a tightening clamp 23. These belong to the connecting elements 7. Obviously the flexible element 24 can be put on any of the elements, but the important thing is, that the tightening clamp 23 could ensure a stable connection resisting to shaking.

I would like to mention here, that according to one of the preferable realizations of the invention the connecting element 7 ensuring the connection between the central element 4 and the outer bordering elements 8 can be a solution ensuring a permanent fixation by eg. welding or sticking or by molding of the connecting element 7 ensuring the connection. In case of this latter method, the connection must be made during production. In this case an independent, additional central element 4 can belong to the other outer bordering element 8.

The material of the shells ensuring the box-like space can be of good thermal insulating value material, preferably of sandwich structure, on the outside thin waterproof plastic, inside cardboard paper shaped to form, or foamed plastic.

The central element 4 can be preferably used in itself as a rack, bags, packages can be fixed on it by rubber bands or slings.

The Fig 4 shows the B-B section of the Fig 3, with the central element 4 in enlarged section. The central element 4 encloses mainly the essence of the invention, the part extending towards the wheel 5 between the back frame 2 and the wheel 3, and the back frame 2 is wider, than the widest version available commercially. The fitting zones 10 of „U" cross-section can be seen on the rims.

There are the same type of fitting zones 10 of „U" cross-section on the plane almost parallel with the plane of the wheel as well. On the bottom of the central element 4 there is such a connecting element 7 depicted, which is the plug part of the so-called half-hinge 35 used with the type-writer boxes, into which the counterpart fixed to the outer bordering elements 8 can be hanged in folded position. Naturally a similar known element can be used for this purpose as well. The outer bordering element 8 is shown in the drawing as well, in basic position shown with broken line, and in unfolded position shown with line-dot-line marking.

The Fig 5 shows the upper fixing of the central element 4 in section. Here the upper fixing element 6a is above the brake fixed to the back frame 2. A plate 13 is fixed to the central element 4 with connecting elements, in this case with screws 12, and its protruding part can be adjusted. At the end of the plate 13 there is a saddle profile 14 of

8

reverse „U" shape leaning against a plug 15 fixed to the back frame 2. The fixing of the plug 15 takes place with two clamps 16 (eg. with AWAB clamp) in such a way, that the plug 15 is fixed to an arched plate 17 each with the help of a distance piece 18. The fixing of the plate 13 can happen with the help of two or four screws, but in given case, when the fixed elongation is sufficient, then it can be fixed with rivets.

Fixing the plate 13 onto the side of the central element 4 offers a suitable solution though not shown in the figures, so it ensures the possibility of adjusting the height with oval bores.

The Fig 6 shows one of the realizations of the lower fixing of the central element. The lower fixing element 6b is connected to the bottom of the central element 4 with a supporting plate 19 each, on both sides. This supporting plate 19 has an arched part fitting to the back frame 2, which is fixed to the back frame 2 the same way by one clamp 16 each.

Below the supporting plate 19 it is preferable to place a bumper 34 as well to ensure keeping of the weight of the rack. The clamp 16 should be preferably possible to be tightened by hand. The same type of lower fixing element 6b can be placed on the central element 4 a bit higher too, in order to get a more loadbearing fixing (see the Fig 3). The fixing with screws ensures the adjusting of the lower fixing element 6b to different frame widths.

The Fig 7 shows another realization of the lower fixing of the central element in side-view. The lower fixing element 6b ensures an easier way of removal of the central element 4 with this formation. In this case the supporting plate 19 ends backwards in a hook, tailing away upwards. A so-called ribbed rod 21 circularly ribbed on the mantle, fixed to the central element 4 sits on it.

This ribbed rod 21 is tightened to the supporting plate 19 with a spring 20. With this solution the central element 4 can be fixed to any frame width without any compulsion of adjusting movement. It is preferable in case the same rack-system is used to bicycles 1 of various size in a family. The spring 20 is bended in such a way, that it can be

rotated around a supporting plug 22 and its one end can be hanged to the back frame 2, the other end tightens the ribbed rod 21 to the hook of the supporting plate 19.

The Fig 8 shows the spatial drawing of the box-like realization of the invention. This drawing depicts one preferable box-like realization of the invention, which can be perfectly locked. It can be seen well in the figure that outer bordering elements 8 are made of two parts and they are connected with each other with a tightening clamp 23. This tightening clamp 23 is a clamp, used mostly with suitcases, which tightens the fixing nose 36 standing out formed on the counterpart to itself when tilted into closed position. Therefore a flexible element 24 is placed as well between the two outer bordering elements 8 (see the review of the Fig 3).

In case of this realization connection below the central element 4 can be made with the so-called half-hinge 35 used with typewriter boxes mentioned already at the Fig 4, and unfolded this way it can be easily got down. Outer bordering elements 8 connect to each other in such a way, that the rim of one of them is formed similarly to the fitting zone 10 of „U" shape, the other outer bordering element 8 ends in a straight line.

The flexible element 24 is among them. The lid 9 can be connected to one of the outer bordering elements 8 with one of the half-hinges 35 each, so it is easy to get it down, the closing can take place with a tightening clamp 23 as well. The lid 9 and the outer bordering elements 8 can be connected to each other the same way as mentioned above. As it has already been mentioned, such a realization can be executed as well, where the outer bordering elements 8 connect to each other and to the central element in a permanent joint and create a continuous, closed suitcase-like rack-box.

The Fig 9 shows the suitcase-like realization of the invention Tollable on four pieces of rolls 26. This preferable realization can be used, when the whole rack is got down from the bicycle 1 together with the central element 4 and they must be forwarded to a distant place. In case of this version a hinged pull handle 25 is preferable, connecting with the outer bordering element 8 through a hinge. The pull handle 25 can be folded and fixed to the outer bordering element 8 when out of use.

The Fig 10 shows the suitcase-like realization of the invention Tollable on two pieces of rolls 26. In this version the use of a pull handle 25 with telescope is preferable, with which the rack can be pulled away in a slanted position and it can be sank into the outer bordering element 8 when out of use.

The Fig 11 shows the invention in folding form, in the state of partial folding. Here a folding version like a paper-bag is shown of the outer bordering element 8. It can be seen in the figure, that it can be folded like a harmonica along the formerly creased line on the short side on the walls of the outer bordering element 8.

The folded version can be fixed with rubber bands if necessary. We note here, that it is possible to form such an outer bordering element 8 in which the rigid side elements are combined with textile parts, so the textile parts ensure, that any shape can be folded. When unfolded, it can be stiffened with separation walls, which can be inserted.

The figure shows, that such a part connects to the central element 4 with the help of a sufficient number of tightening clamps 23 per side, that can not be folded and can be connected below also with the help of the half-hinge 35 to the central element 4. The Fig 12 shows this version in side-view. We want to show here, that on the side of the central element 4 as many sizes and shapes fitting zone 10 can be created as the size and shape of the outer bordering elements 8 in the rack set.

Essentially this is shown by the next, the Fig 13 as well, showing a basket or grid-like realization in a somewhat longer form, therefore in this version the fitting zone 10 is formed elsewhere.

The Fig 14 shows the realization of the invention when bordered with flexible plates 29, where the outer bordering element 8 consists of several flexible plates 29 which are partly fixed to the frame 33 that can be connected to the central element 4, partly they can be pulled to each other with a tightening band 30, in given case with a velcro, so the fixing of the package placed inside is very easy.

The Fig 15 shows an essentially known, in given case a multiple-unit textile rack 31, where a frame 33 is formed at the edges of the back, and the textile is fixed into it with the help of a string 32. This frame 33 is tightened to the fixing nose 36 of the fitting zone 10 by the tightening clamp 23. (see the Fig 16).

The review of the application and function of the solution according to the invention:

From among the elements of the rack system according to the invention first the fixing elements 6 should be fixed to the central element 4. Then with the help of the clamps 16 the plug 15 supporting the upper fixing element 6a is fixed to the back frame 2 of the bicycle 1, and the central element 4 is hanged on it. Then the clamps 16 necessary for tightening the lower fixing element 6b are loosely placed, then the arched plate 17 and the supporting plate 19 fixed to the central element 4 leaning against the back frame 2 are tightened by the clamps 16, then the bumper 34 is fixed by pushing it up to the supporting plate 19.

If the central element 4 is fixed in a stable way, then with the help of the tightening clamps 23 and the half-hinges 35 placed on the lower part, the outer bordering element 8 to be used is fixed to the central element 4. After that it is very easy to place any other type of bordering element 8, only the tightening clamps 23 should be opened and the outer bordering element 8 should be lifted from the half-hinges 35 by tilting it. Afterwards the other outer bordering element 8 can be placed and fixed.

Advantageous effects of the invention:

The invention makes consequent use of the space extending towards the wheels 5 as well as the space occupied by the pedalling legs and thighs, respectively the space left free. It is necessary to fix only the central element 4 on the bicycles 1 and an outer bordering element 8 meeting with any demand can be connected to it in no time.

The bordering sidewalls can be the combination of the solution made known as well. The same rack system can be advantageously used in case several sizes of bicycles (1) are available within one family.

List of references

- 1 bicycle
- 2 back frame
- 3 wheel
- 4 central element
- 5 part extending towards wheel
- 6 fixing elements
- 6a upper fixing element
- 6b lower fixing element
- 7 connecting element
- 8 outer bordering element
- 9 lid
- 10 fitting zone
- 11 stiffening rib
- 12 screw
- 13 plate
- 14 saddle profile
- 15 plug
- 16 clamp
- 17 arched plate
- 18 distance piece
- 19 supporting plate
- 20 spring
- 21 ribbed rod
- 22 supporting plug
- 23 tightening clamp
- 24 flexible element
- 25 pull handle
- 26 roll
- 27 folding rack
- 28 basket or grid
- 29 flexible plate
- 30 tightening band
- 31 textile rack
- 32 string
- 33 frame
- 34 bumper
- 35 half-hinge
- 36 fixing nose

CLAIMS:

1. Bicycle luggage carrier system, fixed onto the back frame part of the bicycle with fixing elements, formed to follow the arc of the wheel, *characterized by that*, the luggage carrier system has a saddle-like central element (4), which has a part extending towards the wheel (5) from the back frame (2) of the bicycle (1) as well, its side plane extends as far as the distance ensuring the turning of the wheel (3), the binding, fixing elements (6) to the back frame (2) of the bicycle (1) are placed on it, as well as such connecting elements (7) which connect the outer bordering elements (8) creating the space of the rack to the central element (4).

2. Bicycle luggage carrier system according to claim 1, *characterized by that*, the outer bordering elements (8) are shells ensuring a box-like space which can be closed by a lid (9), are connected to the central element (4) as well as each other creating a continuous, closed, suitcase-like rack box.

3. Bicycle luggage carrier system according to claim 1 or 2, *characterized by that*, the connecting elements (7) are welds or stickings, or made by molding.

4. Bicycle luggage carrier system according to claim 2, *characterized by that*, the lid (9) can be removed and is connected to one of the shells with half-hinges (35) and can be opened sideways, and can be closed by a tightening clamp (23) against theft.

5. Bicycle luggage carrier system according to any of claims 1-4, *characterized by that*, at the bottom of the connected outer bordering elements (8) there are placed at least two rolls (26), and on the upper part a pull handle (25) is fixed.

6. Bicycle luggage carrier system according to any of claims 1-5, *characterized by that*, the material of the outer bordering elements (8) is preferably of sandwich structure, outside thin waterproof plastic, inside corrugated cardboard paper shaped to form, or foamed plastic insert, *or other stiffening, loadbearing wall-lining, wall enforcing insert*.

7. Bicycle luggage carrier system according to any of claims 1-4 or 6 or 7, *characterized by that*, the outer bordering elements (8) can be folded along the creasing lines and they can be fixed this way, unfolded, can be stiffened with separation wall inserts.

8. Bicycle luggage carrier system according to claim 1, *characterized by that*, the outer bordering element (8) is a basket or grid (28).

9. Bicycle luggage carrier system according to claim 1, *characterized by that, th.Q* outer bordering element (8) consists of flexible plates fixed at the bottom, which are on the one hand fixed to a frame (33) which can be connected to the central element (4), on the other hand they can be pulled to each other with a tightening band (30).

10. Bicycle luggage carrier system according to claim 1, *characterized by that*, the outer bordering element (8) is a textile rack (31), which is fixed on each side to a frame (33) which can be connected to the central element (4).

11. Bicycle luggage carrier system according to claim 1, *characterized by that*, the central element (4) can be used as a rack in itself as well, bags and packages can be fixed to it with a rubber band or slings.

12. Bicycle luggage carrier system according to any of claims 1-11, *characterized by that*, the central element (4) can be made from one piece as a shell, but it can be grid-like support or basket-like as well, its material can be plastic or/and metal and their combination.

13. Bicycle luggage carrier system according to any of claims 1-12, *characterized by that*, there is a plate (13) adjustable lengthwise fixed to the upper fixing element (6a) from among the fixing elements (6) and fixed to the central element (4) with connecting elements, at the end of the plate (13) there is a saddle profile (14) of reverse „U" shape, leaning against a plug (15) fixed to the back frame (2), the fixing of which takes place by two clamps (16) in such a way, that the plug (15) is fixed to an arched plate (17)

each with the help of a distance piece (18), the fixing of the plate (13) can take place with the help of two or four screws (12), but in given case, when the fixed extension is sufficient, it can be fixed by rivets.

1/8

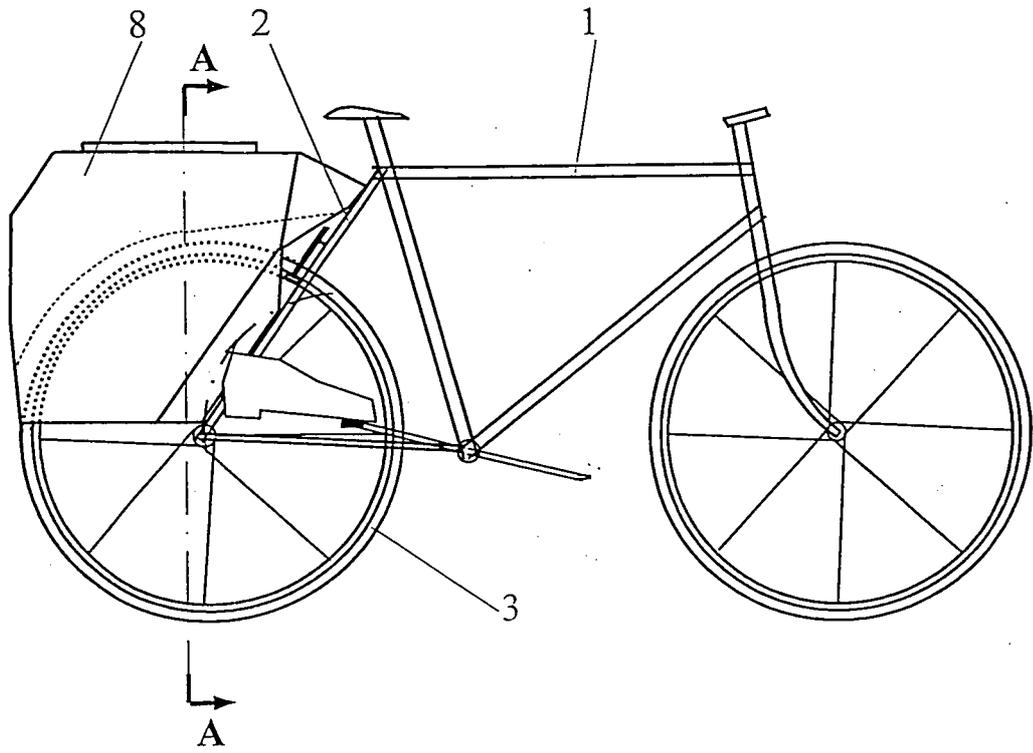


FIG. 1

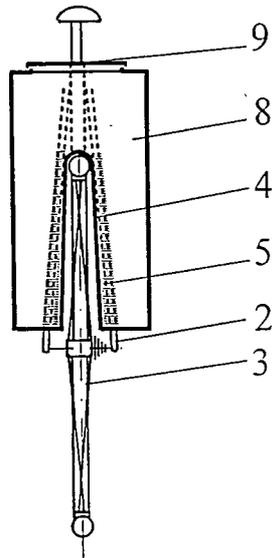


FIG. 2

2/8

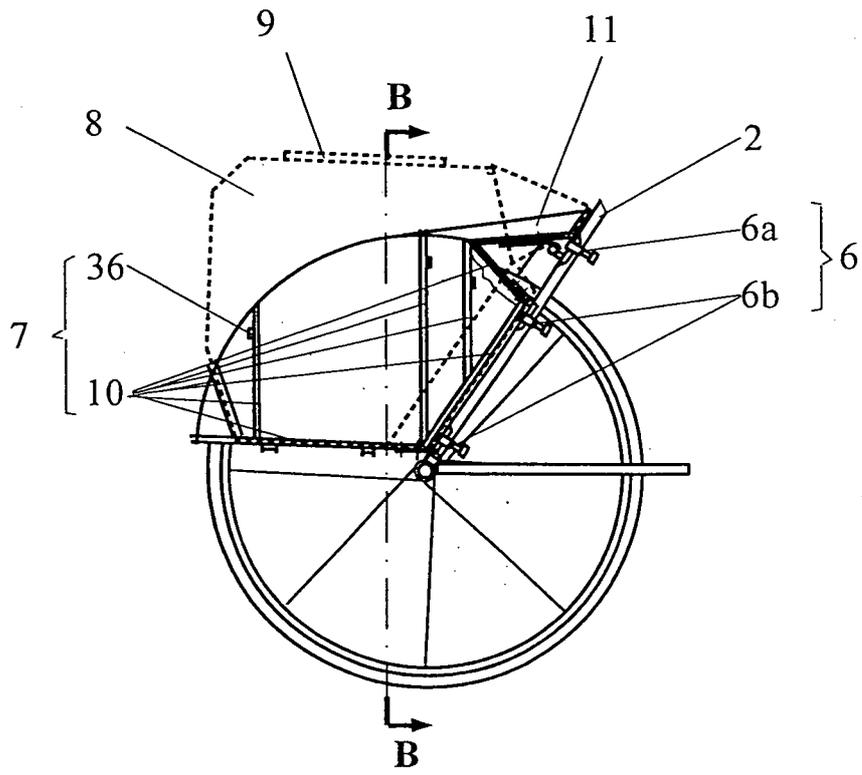


FIG. 3

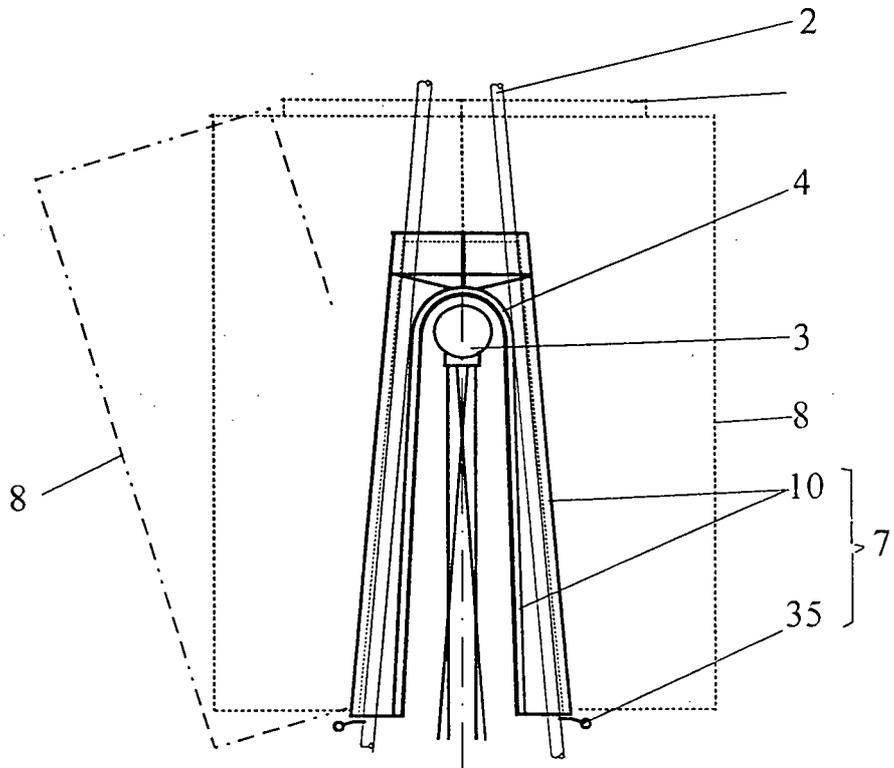


FIG. 4

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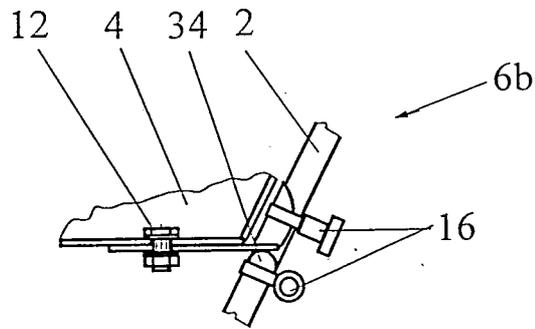


FIG. 5

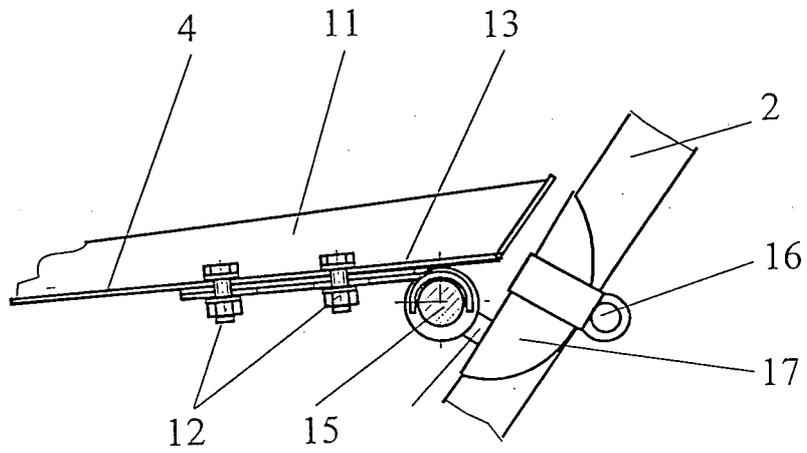


FIG. 6

4/8

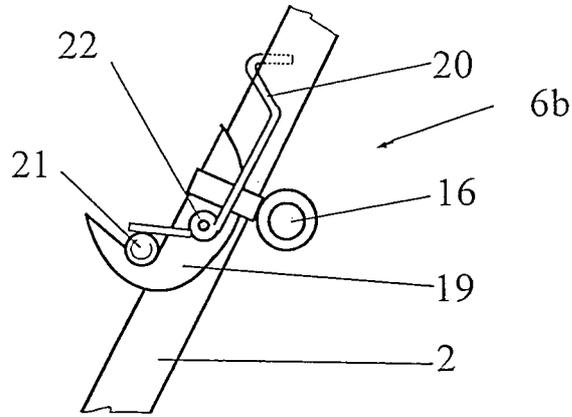


FIG. 7

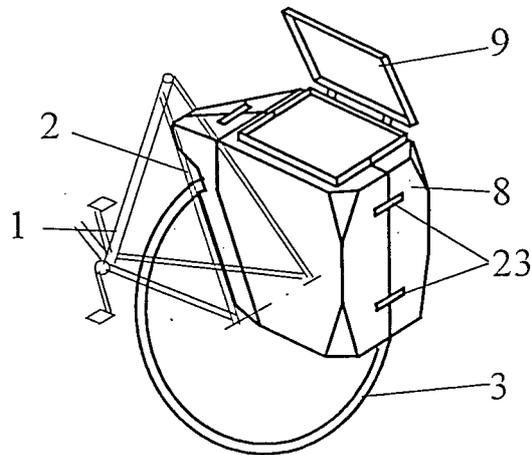


FIG. 8

5/8

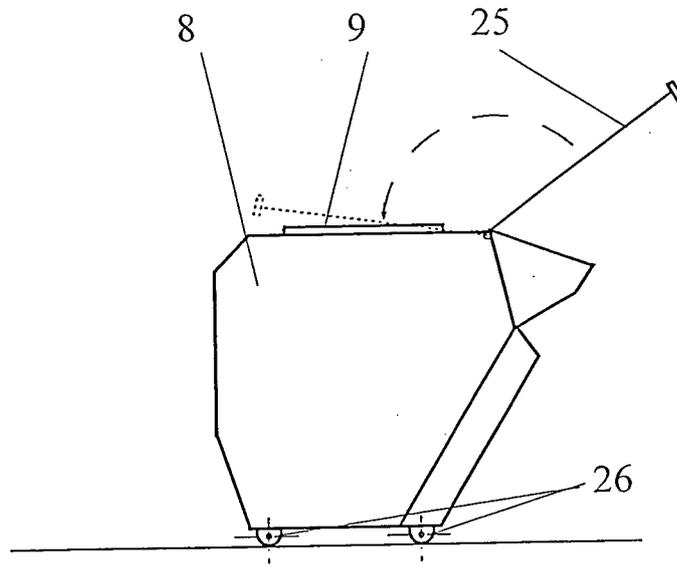


FIG. 9

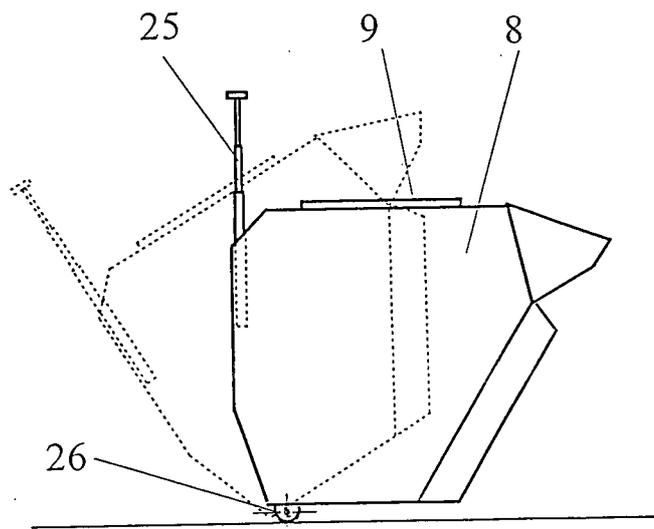


FIG. 10

6/8

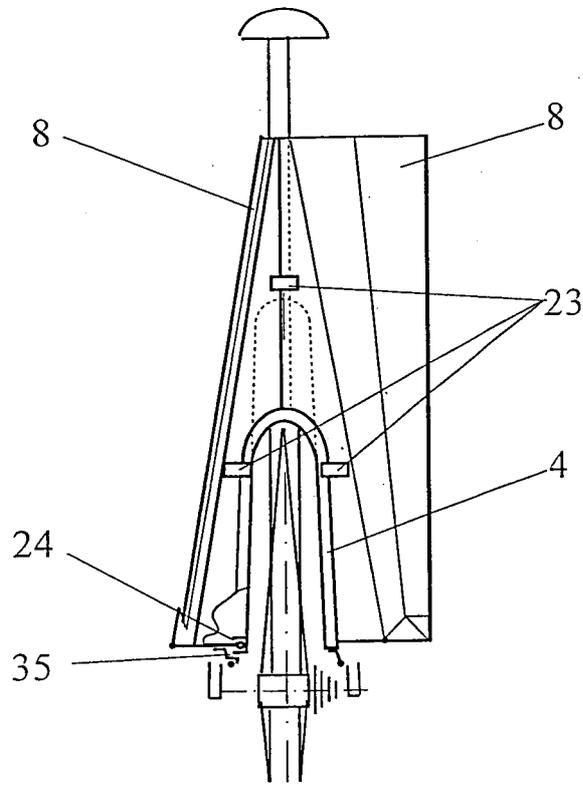


FIG. 11

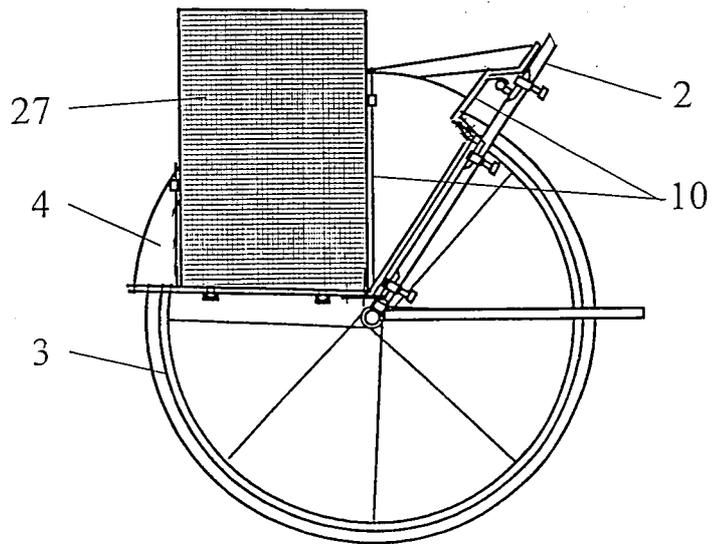


FIG. 12

7/8

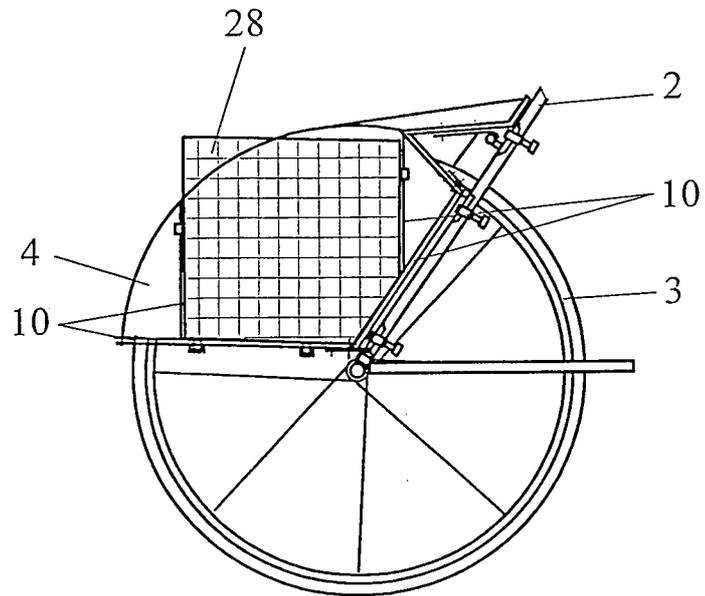


FIG. 13

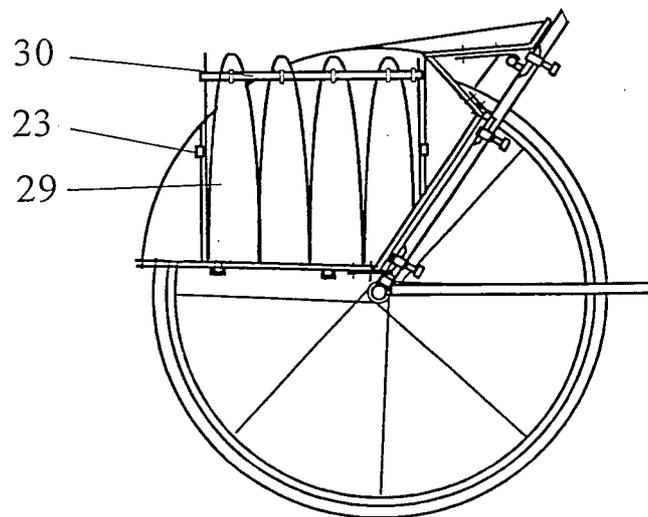


FIG. 14

8/8

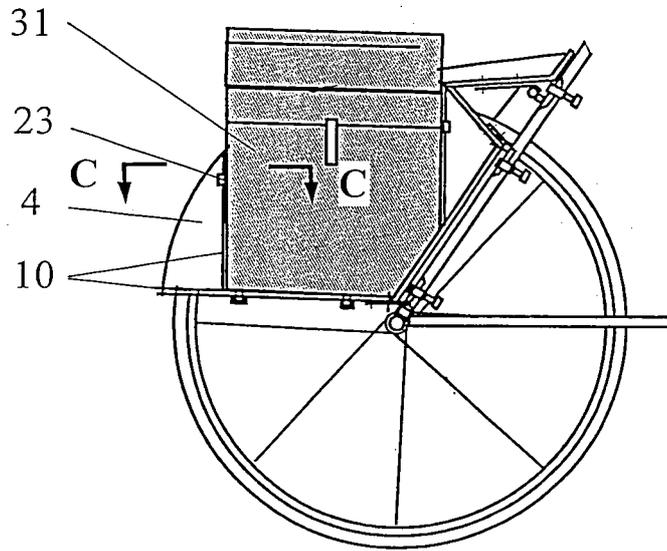


FIG. 15

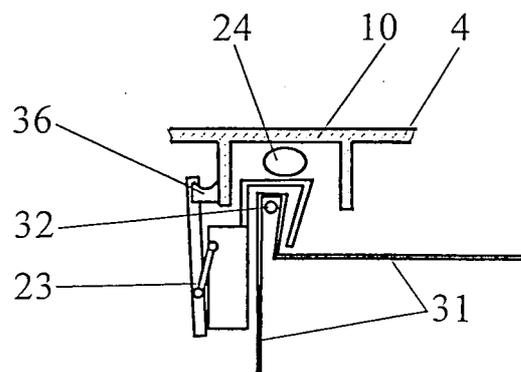


FIG. 16

INTERNATIONAL SEARCH REPORT

International application No.

PCTVHU 2009/000045

A. CLASSIFICATION OF SUBJECT MATTER		<i>B62J 9/00 (2006.01)</i> <i>B62J7/04 (2006.01)</i> <i>B62J15/00 (2006.01)</i>
According to International Patent Classification (IPC) or to both national classification and IPC		
B. FIELDS SEARCHED		
Minimum documentation searched (classification system followed by classification symbols) A45C 3/00-7/02, 13/00-13/42, B62J 1/00-1/28, 7/00-1 1/02, 15/00-15/04		
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched		
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) Bazi FIPS, EAPO, Esp@cenet, USPTO, PAJ, K-PION		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X Y A	US 672495 A (CHARLES W. SMITH) 23.04.1901, p. 1, lines 12-18, 36-92, fig. 1-6	1-2, 8 5, 7, 9-11 13
X Y A	US 4050615 A (MELBERT A. KLINE) 27.09.1977, col. 1, lines 20-23, col. 2, lines 44-47, fig. 1-7	1-3, 6, 12 4 13
Y A	US 1963333 A (CALEB A. MORALES) 19.06.1934, fig. 1-4	4, 7 13
Y	FR 2203346 A (COUDERC LUCIEN) 10.05.1974, p. 1, lines 1-6, fig. 1	5
X I Further documents are listed in the continuation of Box C. <input type="checkbox"/> See patent family annex.		
* Special categories of cited documents:		
"A" document defining the general state of the art which is nit considered to be of particular relevance	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention	
"E" earlier application or patent but published on or after the international filing date	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone	
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art	
"O" document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family	
"P" document published prior to the international filing date but later than the priority date claimed		
Date of the actual completion of the international search 21 September 2009 (21.09.2009)	Date of mailing of the international search report 08 October 2009 (08.10.2009)	
Name and mailing address of the ISA/RU FIPS Russia, 123995, Moscow, G-59, GSP-5, Berezhkovskaya nab., 30-1 Facsimile No. 243-3337	Authorized officer Yu. OJK Telephone No. (495) 730-7641	

INTERNATIONAL SEARCH REPORT

International application No.
PCT/HU 2009/000045

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	SU 1119907 A (KYTERGIN YU.G.) 23.10.1984, col. 2, lines 35-55, col. 4, lines 8-15, fig. 1-4	10-1 1
Y	DE 3244492 C2 (DIETRICH, WALTER) 17.02.1994, fig. 1-2	9
A	US 4345703 A (RICHARD A. ALLEN) 24.08.1982, col. 2, lines 22-28, col. 3, lines 24-26, fig. 1-4	1-13