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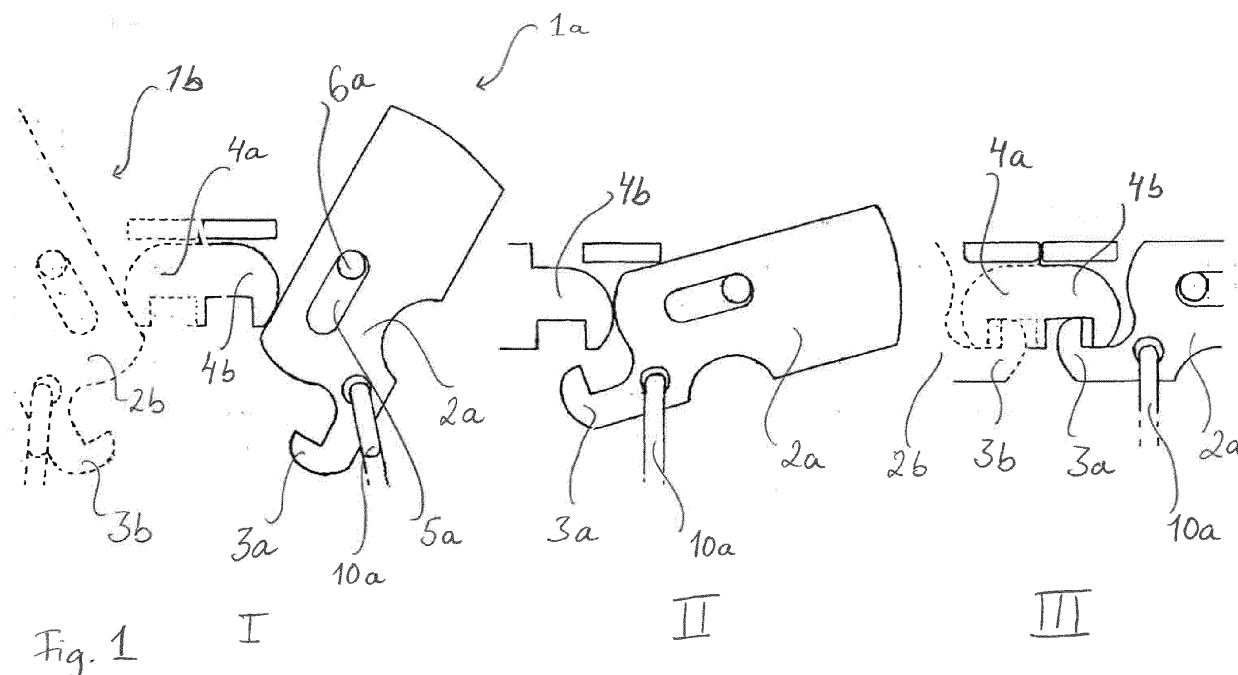
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(54) **Coupler for model railway cars with magnetic activated pre-set function**

(57) The present invention discloses a coupler device 1a intended for model railway cars, said coupler device 1a of one model railway car comprising
- a movable hook part 2a comprising a hook 3a; and
- a coupling part 4a intended to be connected with a movable hook part 2b of another model railway car, wherein

the coupler device enables pre-setting.

Furthermore, there is also disclosed a coupler device intended for a model railway locomotive, comprising a movable hook part which is intended to be connected to a coupler device of a model railway car according to above.



Description

Field of invention

[0001] The present invention relates to coupler devices for model railway cars and locomotives.

Technical Background

[0002] The function of any coupling device for cars used on rails both in the prototype and models may be categorized into accommodating compressive and into accommodating tension forces. Compressive forces are applied when the cars of the train are pushed while tension forces are applied when the locomotive pulls the train. In some prototypical constructions these two functions are integrated into one device. Such constructions are common in North America and in most new constructions especially for modular passenger trains that are not powered by an individual locomotive. The traditional prototypical construction in e.g. Europe has buffers to accommodate compressive forces while the tension forces are accommodated with a hook and loop arrangement. In order to separate cars, to uncouple the coupler, the mechanism that accommodates tensile forces needs to be deactivated. The hook needs to be disengaged. This is for the prototype in most instances done manually while the cars are compressed which means that there is no or minimal forces acting on the hook. The cars may then be pushed to the desired location and left there without any other action as long as the tension mechanism is disengaged. This function is in this application called "pre-setting". For some modern prototype equipment the deactivating mechanism may be remote controlled.

[0003] As manual deactivation of the tension mechanism is cumbersome in the scale of most models. The deactivation of the tension mechanism needs to be done in a principally different way, preferably using a remote control. In order for this to work in the same way as the prototype, the tension mechanism should remain deactivated until the cars have been separated and then automatically activated so when cars are brought together they will be automatically coupled together. The key is thus to find a way to keep the tension mechanism deactivated, once deactivated, as long as the cars are close together, meaning the coupler is compressed e.g. during pushing of the train. The other challenge is to make the mechanism as small as possible or to have a similar appearance as the prototype. If there needs to be a fixed installed device close to the rails, to control the couplers, this should be hidden, disguised or look like devices that are present in the prototype at the same location. One principle to achieve this is by using magnetic influence. By using an electromagnet, the magnetic field may be switched on and off as needed.

[0004] There exist several different types of coupler devices for model railway cars today. Most couplers used for model trains today are of the so called "hook and loop"

design for Europe and the so-called "knuckle" design for the rest of the world.

[0005] The "hook and loop" design act in such a way that the pair of couples is positioned coupled together over an uncoupling device. For most designs this is a ramp positioned between the rails that may be elevated for uncoupling. For most designs, when the ramp is elevated it opens the hooks or alternatively the loops and the cars can be pulled apart. The couplers become activated once they leave the ramp or the ramp is lowered. There are some designs where the hooks are disengaged by a ramp and prevented from engaging until the cars are separated. These designs allow pre-setting of the couplers

[0006] In DE3025878 there is disclosed one specific such type, where a ramp is used to disengage the loops which are hindered to re-couple by a metal sheet that falls down hindering a movable loop to engage with fixed hooks. Furthermore, the principle is also used for the coupler disclosed in DE8018431. Another specific type where a "barrier sheet" is used to hinder the hooks to engage is shown in DE9303457. Pre-setting is achieved by pushing the hooks upwards by use of a ramp and the hooks are kept disengaged by a spring-loaded steering piece. Another specific coupling type with pre-setting is disclosed in DE3522735. In this case the hooks are locked together from the side. A disc is pushed upwards to disengage the hook by use of a ramp between the tracks. In DE3534325 there is also disclosed a coupler with pre-setting. The hook is lifted by a ramp. A sheet hinders the hook to fall back in position. Furthermore, in DE8325666 there is also disclosed a coupler with pre-setting, in which the coupler is disengaged by a ramp. This coupler comprises a wheel which is mounted eccentric and which pushes the hook upwards when the car is run over the ramp. The couplers of two cars stay in this position until the couplers are taken apart.

[0007] The "knuckle" design is used in the prototype railroads and takes care of both compressive and tensile forces between cars. The coupler designs for model use are either disengaged by applying a magnetic field or by use of a ramp positioned between the rails. In order to disengage this type of coupler, the pair of couplers is placed over the uncoupling mechanism and the couplers are pulled apart. By bringing the couplers together again when they are positioned over the magnet or the ramp, they may remain disengaged or preset until the couplers are separated again. In e.g. US578519 there is shown one type of such knuckle design.

[0008] Furthermore, in e.g. US5662229 there is shown a model railroad coupler centring system for such knuckle designs, said system comprising a draft box and a coupler.

[0009] There are of course also other specific coupler designs shown today. One such is disclosed in DE810607. The coupler has a hook, which is turned around its horizontal axis.

[0010] There are drawbacks with the designs known

today. Thus the "knuckle" designs do not allow for pre-set action without a back and forth movement of the cars over a magnet or ramp. Another design allowing for pre-setting as discussed above is disclosed in AT223086. The hooks are lifted by a ramp and are locked to a permanent magnet holding the hooks in a preset position. This design, however, has other disadvantages, such as the need to incorporate a permanent magnet in the coupler. Further the design is big and needs a ramp for disengagement.

[0011] The "hook and lope" types have other disadvantages, such as e.g. the need of a ramp for disengagement. Moreover, these designs are too big to resemble the appearance of the prototype.

[0012] To summarize, the constructions in use on model trains today have one or more of the following shortcomings listed above, for which the present invention has advantages: 1) too big to resemble the appearance of the prototype, 2) excessive forces needed to couple the cars or to activate the coupler, 3) poor functionality that does not reproduce the function of the prototype, 4) the external activation mechanism difficult to disguise or hide.

[0013] The purpose of the present invention is to provide a coupler design which solves the problems mentioned above and is easy to use, both in terms of the possibility of engagement and disengagement of couplers on cars and also in terms of user operation, such as allowing pre-set operation without separation of the couplers over a magnet.

Summary of invention

[0014] The stated purpose above is achieved by a coupler device intended for model railway cars, said coupler device of one model railway car comprising

- a movable hook part comprising a hook;
- a coupling part intended to be connected with a movable hook part of a coupler device of another model railway car;

wherein the movable hook part of said one model railway car has at least two stable positions when said two model railway cars are connected, allowing for the coupler devices of the two model railway cars to be non-pre-set or pre-set when the two model railway cars are connected and moved together, wherein the coupler device of said one model railway car is pre-set by an external magnet, and wherein a vertical position of the hook of the movable hook part of said one model railway car is possible to change from an engaged to a disengaged position in relation to a coupling part of said another model railway car by magnetic force together with gravity, or by magnetic force together with the movable hook part of said one model railway car being rotatable around a shaft of the movable hook part of said one model railway car.

Definitions

[0015] Below there is provided explanations of some definitions in relation to the present invention.

[0016] The expression "connected", both in relation to a coupling part/movable hook part and two model railway cars, implies that the items are brought into intended contact with each other. The expression should, however, not be confused with the expressions engaged/disengaged. In other words, two model railway cars may be connected to each other without being engaged. Connected couplers imply that the couplers of two cars are joined together in some way. This may be seen in fig. 1, view I, where the movable hook part of one model railway car is in contact with the coupling part of another model railway car, however, they are not in an engaged position. In view III in fig. 1, however, they are engaged.

[0017] An engaged hook implies that the hook is joined and fastened with the coupling part of the other car enabling transfer of tensile load. A disengaged hook, consequently, implies that the hook may be connected with the coupler part of the other car. This does not enable transfer of tensile load. The couplers are separated when tensile load is applied.

[0018] Furthermore, pre-set couplers are connected coupler devices where the hooks are in a disengaged position with the coupling parts only enabling compressive forces (see view I in fig. 1).

[0019] The expressions "engaged position" and "disengaged position" are used below. An "engaged" position for a hook and a coupling part is shown in fig. 1, view III, where these parts are connected and in a non-pre-set mode. A "disengaged position" is shown in view I in fig. 1 where the hook and the coupling part is in contact and in a pre-set mode, but also in view II where the hook and the coupling parts are approaching each other but still disengaged and in a non-pre-set mode. In the latter case, the hook and the coupling part is about to be engaged.

[0020] Moreover, in connection with the present invention, a "stable position" should be interpreted as implying a position which is possible to maintain for the movable hook part without the use of any operator controlled applied external force.

[0021] Furthermore, the expression "external magnet" implies a magnet which is not provided on the cars, but in this case e.g. on the rail bed, such as positioned between the rails.

[0022] By use of at least two stable positions for the coupler design and the joined effect of an external applied force (magnetic force) together with a coupler design enabling the movable hook part going from one stable position (engaged) to another (disengaged), several advantages are obtained. The first thing is the possibility of engaging and disengaging the cars without the need of subsequently separating the same to achieve a stable disengaged state. This is possible with the standard "hook and loop" design, where a barrier sheet is used to ensure that the hooks are not engaged again once dis-

engaged by a ramp positioned between the rails but not with the "knuckle" design, where the couplers need to be separated and brought together over a magnet in order to become pre-set. A second thing is the easiness to engage and disengage the cars. Although this may be performed without subsequently separating the cars, it may be made by use of a magnetic field, which is standard for model railway equipment today ("knuckle design equipment"). It should also be easy to separate the cars in case of a derailment or if the cars are picked up manually from the track. According to one embodiment of the present invention this may be done by turning the cars with couplers upside down or by bringing the two couplers to an angled position so that the wheels of the adjacent cars are brought together. As such, standard cars and locomotives may be used, and this new coupler maybe fitted on new as well as used rolling equipment. A third thing is the simplicity of the design of the coupler according to the present invention in itself. No magnet within the coupler or complex hook design is necessary, such as is described for the design according to AT223086.

Brief description of the drawings

[0023]

Fig. 1 shows a cross section of the coupler parts and hooks of a coupler device according to one specific embodiment of the present invention. Different positions when such coupler devices are pre-set and engaged, non-pre-set and disengaged and finally non-pre-set and engaged are shown in fig. 1.

Fig. 2 shows the same coupler device embodiment as in fig 1, however seen from other perspectives and also showing other details.

Fig. 3 shows another coupler device embodiment of the present invention and two different possible positions of the movable hook of this coupler device.

Fig. 4 shows a coupler device intended for a model railway locomotive according to one embodiment of the present invention.

Specific embodiments of the invention

[0024] Below, specific embodiments of the present invention are disclosed.

[0025] According to one embodiment of the present invention, said movable hook part has two stable positions when said two model railway cars are connected. This specific embodiment is shown in fig. 1 and 2 and further explained below. According to one specific embodiment of the present invention, the operation from a first stable position to a second stable position is driven by gravity.

[0026] The stable positions may be different in different embodiments of the invention, and the operation from one stable position to another stable position may be accomplished in different modes.

[0027] According to one embodiment, a first stable position of the movable hook part when said two model railway cars are connected and engaged is in a non-pre-set mode when the movable hook part of one model railway car is in an engaged position with the coupling part of another model railway car, and a second stable position of the movable hook part when said two model railway cars are connected in a pre-set mode where the movable hook part of one model railway car is in an disengaged position with the coupling part of another model railway car.

[0028] When viewing fig. 1 it may be observed that the operation from one stable hook position to another stable hook position, i.e. between two balanced positions, may be driven by the external force of a magnet together with a design enabling influence from gravity. According to the specific embodiment shown in fig. 1 and 2 this is enabled by different design aspects. As may be seen, the movable hook part is attached to the coupling part of one and the same model railway car on a horizontal or substantially horizontal shaft of the coupling part, making the movable hook part movable in a vertical or substantially vertical direction. Moreover, the movable hook part may have an elongated hole in which a shaft of the coupling part of one and the same model railway car is positioned. These two technical aspects enable the movable hook part to change its position by the influence of an external magnet together with gravity. In relation to the technical features disclosed above, it is important to understand that the design of the coupler device may vary and that the embodiment shown in fig. 1 and 2 is only one example. The same goes for the embodiment shown in fig. 3 which is discussed below.

[0029] The coupler may be attached to the car by different means and in different ways. According to one specific embodiment, the coupler device has a fastener for fastening of the coupler device to said one model railway car, said fastener comprising a threaded axis on which the coupler device is fastened. The threaded axis, also shown in fig.2, enables the coupler to be adjusted vertically. The fastener is normally attached on the bottom side of the car, but this is not a must.

[0030] According to yet another embodiment, the fastener also comprises a spring. Such a spring is also shown in fig. 2. Once the coupler has been uncoupled the spring brings the coupler back to the center position to have it aligned for coupling with another car. This is of course of great interest for great flexibility of the cars when run over curved rails and makes the coupler easily adjustable to accommodate different heights of the cars over the rails. As may be understood from above, vertical adjustment together with flexibility in the horizontal plane plus automatic centering is possible to achieve with a fastener design according to the present invention. In this sense it is, however, important to realize that also known fasteners, such as the one disclosed in US5662229 with a centering system allowing for movement in the horizontal plane and non-locking back to a center position,

are possible to combine with a coupler according to the present invention. Moreover, the attachment of the coupler to the body of the car is in one embodiment constructed according to the description in the European NEM 362 standard (NEM is the Normal European Modeling Standards that are established by MOROP (European Union of Model Railroad and Railroad Fans)). In this case the holder for the coupler according to NEM 362 has a mechanism that brings the coupler to the centre position in order to align the coupler to the right position for coupling to the coupler on the other car.

[0031] As hinted above, and seen in fig. 1 and 2 compared to fig. 3, the design of the coupler according to the present invention may vary. According to one specific embodiment, the movable hook part is rotatable around a shaft of the movable hook part. As is possible to see in fig. 3, such a design also allows for the coupler to have two stable positions. When an external magnet force is applied, the hook of the coupler device is possible to disengage. This is done by making the hook rotatable around its shaft (longitudinal head axis), by applying an external magnetic field. Therefore, according to one specific embodiment, the movable hook part of one model railway car is designed to be engaged with a coupling part of another model railway car in a vertical or substantially vertical position of the movable hook part and disengaged in a horizontal or substantially horizontal position of the movable hook part. This may be seen in fig. 3 and is further explained below. Furthermore, according to another specific embodiment, the movable hook part is designed with a slanted element that makes the hook rotate to its engaged position when it passes under the coupling part of the other model railway car when said model railway cars are separated.

[0032] The hook of the movable hook part has at least two stable positions where one is in the engaged and one in the disengaged state making sure that this movement renders the hook part to go from coupled to uncoupled and hence two cars to go from non-pre-set to pre-set mode. This makes it possible to push the cars and still keep them pre-set. When compared to e.g. the coupler design shown in DE810607, such operation is not possible as this coupler does not have a stable disengaged position when the couplers of two cars are in contact.

[0033] As may be seen in fig. 3, the movable hook part may be freely arranged from the coupling part of one and the same model railway car. Furthermore, the coupling part may have different designs. According to one embodiment, the coupling part is a wire arranged as a fixed loop extending from the rear of said one model railway car. Such a wire may extend directly from the entire rear end, such as shown in fig. 3, or may be fixed between the buffers. The movable hook is designed in such a way that it is rotated back to its engaged position when the cars are separated, as explained above.

[0034] Also in the embodiment shown specifically in fig. 3, a fastener may be arranged for attaching the cou-

pler device to the car. According to one embodiment, the coupler device has a fastener for fastening of the coupler device to said one model railway car, said fastener providing for the hook part to be able to rotate along an axis along the head direction of the hook and also keep the hook vertically in close proximity to the coupling part of the other car by spring loading. According to one embodiment, the fastener comprises a spring or a counterweight enabling the movable hook part to be kept in close contact with the coupling part of another model railway car. Also in this case the fastener is normally attached on the bottom side of a railway car.

[0035] Also a coupler device intended for a model locomotive is described with the present invention. Therefore, according to one specific embodiment of the present invention there is provided a coupler device intended for a model railway locomotive, comprising a movable hook part which is remote-controlled in order to operate the movable hook part from an engaged to a disengaged connection mode in relation to a coupler device of a model railway car according to the present invention and disclosed above, allowing for the model railway locomotive and the model railway car to be engaged or disengaged when being connected and moved together. In this case, a magnet, e.g. an electromagnet, is suitably arranged on the locomotive in order to provide the possibility of remote-controlling the disengaging mechanism of the locomotive. The fixed coupling part of the coupling for the locomotive is modified not to allow the movable hook of the car to engage. If this modification is not done, the couplers would only be disengaged if both the movable hook of the car was disengaged by an external magnet before or at the same time as the magnet in the locomotive is activated.

[0036] As may be noted from above, the coupler device intended for a model railway locomotive according to the present invention does not necessarily comprise a coupling part. The fact is that that the coupler device intended for a model railway locomotive may comprise a coupling part, however, it should in that case be non-functional, i.e. without the pre-setting function, so that the locomotive may be remote-controlled as according to above. One important difference that may be noted between the locomotive and the cars is the placement of the magnets. The locomotive has a magnet or electrical motor or other actuator provided on the locomotive that disengages the coupler part on the car when activated. This electromagnet may be activated using a digital control system that also allows control of several different functions of the locomotive, e.g. switching the light on and off. As mentioned above, in order for this to be effective, the coupler on the locomotive must not have the coupling part intended to be engaged with a hook part of a car. Thus the position, engaged or disengaged, of the movable hook of the coupler on the car does not have any influence on if the two couplers may transfer tensile forces. Only the position of the movable hook of the locomotive determines if the two couplers can transfer tensile forces.

[0037] Moreover, the present invention is also related to a model railway car comprising a coupler device according to above, and also a model railway locomotive comprising the locomotive coupler discussed above. The model railway car and also the model railway locomotive may be of any type used today, standard as well as very specific types.

Detailed description of the drawings

[0038] Fig. 1 shows cross sections of the coupler parts and hooks of a coupler device according to one specific embodiment of the present invention. The coupler device 1 a intended for model railway cars comprises a movable hook part 2a comprising a hook 3a and a coupling part 4a intended to be connected with a movable hook part 2b of a coupler device 1 b of another model railway car. As may be seen from the three views, when the couplers of two cars are joined, the movable hook parts 2a, 2b have two stable positions. In the first position (see view I) the movable hook part 2a is engaged with the coupling part 4b (also the movable hook part 2b to the coupling part 4a) and is also in a pre-set mode. The movable hook part 2a is kept in this position by gravity as the center of gravity of the movable hook part 2a is located on the side of the axle towards the car. When the coupler device 1 a is disengaged, a rod 10a, such as a soft iron rod, is pulled downwards by the applied external magnetic field. The movable hook part 2a then slides in the elongated hole 5a with respect to the shaft 6a and is kept in the disengaged position as long as the couplers are joined by the geometrical shape of the movable hook part 2a resting against the end of the coupling part 4b.

[0039] When the couplers are separated, the shaft 6a is in the same position in the elongated hole 5a of the movable hook part 2a and remains semi-open by resting on a fixed part of the coupling part 4b. This position is shown in view II and may be seen as a non-pre-set and disengaged mode (or a mode in which the cars are about to be disengaged or separated). Furthermore, this allows for coupling with minimal force when two coupler devices 1 a, 1 b are joined.

[0040] When two coupler devices 1 a, 1 b are brought together, the movable hook part 2a is moved backwards (towards the car), the shaft 6a changes position in the elongated hole 5a and the movable hook part 2a is not resting on the fixed part of the coupling part 4b. The movable hook part 2a engages with the coupling part 4b (and the movable hook part 2b to the coupling part 4a) and the two coupler devices 1 a, 1 b are engaged, and non-pre-set. This position is shown in view III.

[0041] As has been disclosed above, the pre-setting is performed by means of an external magnet.

[0042] Fig. 2 shows the same coupler device embodiment as in fig 1, however seen from other perspectives. In view I, the coupler part 4a is shown from the side, standing upright. In view II, the coupler part 4a is shown with the bottom side up. There the shaft 6a may also be

seen. As may be seen in the views, especially also in view III, a fastener 7a comprising a threaded axis 8a is also provided. Moreover, the fastener 7a also comprises a spring 9a. The threaded axis 8a enables the coupler device 1 a to be adjusted vertically. The spring 9a is provided for centering of the coupler device 1 a. View IV in fig. 2 shows the detail having the soft iron rod 10a.

[0043] Fig. 3 shows another coupler device embodiment according to the present invention and shown in two different positions in view I and II, respectively. The movable hook part 2a is in this case rotatable around a shaft (the longitudinal head axis) of the movable hook part 2a. The movable hook part 2a comprises a hook 3a, in this specific case shown in fig. 3 in the shape of a triangle. The movable hook part 2a of one car is essentially vertical and directed upwards and engages with the coupling part 4b comprising a horizontal wire or rod of the other car by being pushed upwards by means of a spring (or gravity). When an external magnetic field is applied, the rod 10a, e.g. a soft iron rod 10a, is pulled downwards. As the rod 10a is attached on one side of the essentially horizontally positioned axle that is a part of the movable hook part 2a, the axle rotates 90° bringing the hook 3a to an essentially horizontal orientation and the couplers are disengaged. There are minimal rotational forces acting on the axle as it is balanced. The two positions are maintained by means of the inevitable friction in the bearings. When the cars are separated, the hook 3a is rotated back to the engaged position when the slanted side of the coupler device 1 a passes the horizontal fixed other coupling part 4b. The hook 3a of the now free coupler device 1 a rests by spring loading or gravity on the fixed horizontal coupler device 1 a on the same car. When two coupler devices 1 a, 1 b are brought together the hook 3a slides under the horizontal coupling part 4b of the other car as it is resilient by means of a spring or gravity. View I shows one coupler device 1 a with the movable hook part 2a and its hook 3a in its engaged position. View II shows the movable hook part 2a and its hook 3a in its disengaged position. The coupling part 4b of the other car is indicated in both views. Moreover, in both views there is also shown a fastener attachment part 11 a.

[0044] Fig. 4 shows a coupler device 1 c intended for a model railway locomotive according to one embodiment of the present invention. The coupler device 1 c comprises a movable hook part 2c (corresponds to 2a and 2b for the car coupler device 1 a and 1 b, respectively) which is remote-controlled in order to operate the movable hook part 3c from an engaged to a disengaged connection mode in relation to a coupler device 4b of a model railway car. This allows for the model railway locomotive and the model railway car to be engaged or disengaged when being connected and moved together. The coupler device 1 c intended for a model railway locomotive also comprises a movable hook part 3c (corresponds to 3a and 3b on the cars) and a static part 4c not having any hook (compare with 4a and 4b, respectively). This design

makes the movable hook of the cars to not engage the locomotive coupler 1 c. Furthermore, the locomotive has a magnet or electrical motor provided on the locomotive that moves the coupler part 2c from engaged to disengaged position.

Claims

1. Coupler device (1a) intended for model railway cars, said coupler device (1 a) of one model railway car comprising
 - a movable hook part (2a) comprising a hook (3a);
 - a coupling part (4a) intended to be connected with a movable hook part (2b) of a coupler device (1 b) of another model railway car; wherein the movable hook part (2a) of said one model railway car has at least two stable positions when said two model railway cars are connected, allowing for the coupler devices (1 a, 1 b) of the two model railway cars to be non-pre-set or pre-set when the two model railway cars are connected and moved together, wherein the coupler device (1a) of said one model railway car is pre-set by an external magnet, and wherein a vertical position of the hook (3a) of the movable hook part (2a) of said one model railway car is possible to change from an engaged to a disengaged position in relation to a coupling part (4b) of said another model railway car by magnetic force together with gravity, or by magnetic force together with the movable hook part (2a) of said one model railway car being rotatable around a shaft of the movable hook part (2a) of said one model railway car.
2. Coupler device (1a) according to claim 1, wherein said movable hook part (2a) has two stable positions when said two model railway cars are connected.
3. Coupler device (1 a) according to claim 1 or 2, wherein the operation from a first stable position to a second stable position is driven by gravity.
4. Coupler device (1a) according to anyone of claims 1-3, wherein a first stable position when said two model railway cars are connected and engaged is in a non-pre-set mode when the movable hook part (2a) of one model railway car is in an engaged position with the coupling part (4b) of another model railway car, and wherein a second stable position when said two model railway cars are connected and engaged is in a pre-set mode where the movable hook part (2a) of one model railway car is in a disengaged position with the coupling part (4b) of another model railway car.
5. Coupler device (1a) according to anyone of claims 1-4, wherein the movable hook part (2a) is attached to the coupling part (4a) of one and the same model railway car on a horizontal or substantially horizontal shaft of the coupling part (4a), making the movable hook part (2a) movable in a vertical or substantially vertical direction.
6. Coupler device (1a) according to anyone of claims 1-5, wherein the movable hook part (2a) has an elongated hole (5a) in which a shaft (6a) of the coupling part (4a) of one and the same model railway car is positioned.
7. Coupler device (1a) according to anyone of claims 1-6, wherein the coupler device (1 a) has a fastener (7a) for fastening of the coupler device (1 a) to said one model railway car, said fastener (7a) comprising a threaded axis (8a) on which the coupler device (1a) is fastened.
8. Coupler device (1a) according to claim 7, wherein the fastener (7a) also comprises a spring (9a).
9. Coupler device (1 a) according to claim 1 or 2, wherein the movable hook part (2a) is rotatable around the shaft of the movable hook part (2a).
10. Coupler device (1 a) according to claim 9, wherein the movable hook part (2a) of one model railway car is designed to be engaged with a coupling part (4b) of another model railway car in a vertical or substantially vertical position of the movable hook part (2a) and disengaged in a horizontal or substantially horizontal position of the movable hook part (2a).
11. Coupler device (1 a) according to claim 9 or 10, wherein the movable hook part (2a) is designed with a slanted element that makes the hook (3a) rotate to its engaged position when said model railway cars are separated.
12. Coupler device (1 a) according to anyone of claims 1, 2 or 9-11, wherein the movable hook part (2a) is freely arranged from the coupling part (4a) of one and the same model railway car.
13. Coupler device (1 a) according to anyone of claims 1, 2 or 9-12, wherein the coupling part (4a) is a wire arranged as a fixed loop extending from the rear of said one model railway car.
14. Coupler device (1 a) according to anyone of claims 1, 2 or 9-13, wherein the coupler device has a fastener (7a) for fastening of the coupler device to said one model railway car, said fastener (7a) comprising a spring or a counterweight enabling the movable hook part (2a) to be kept in close contact with the

coupling part (4b) of another model railway car.

15. Coupler device (1 c) intended for a model railway locomotive, comprising a movable hook part (2c) which is remote-controlled in order to operate the movable hook part (2c) from an engaged to a disengaged connection mode in relation to a coupler device (1 a) of a model railway car according to anyone of claims 1-14, allowing for the model railway locomotive and the model railway car to be engaged or disengaged when being connected and moved together.

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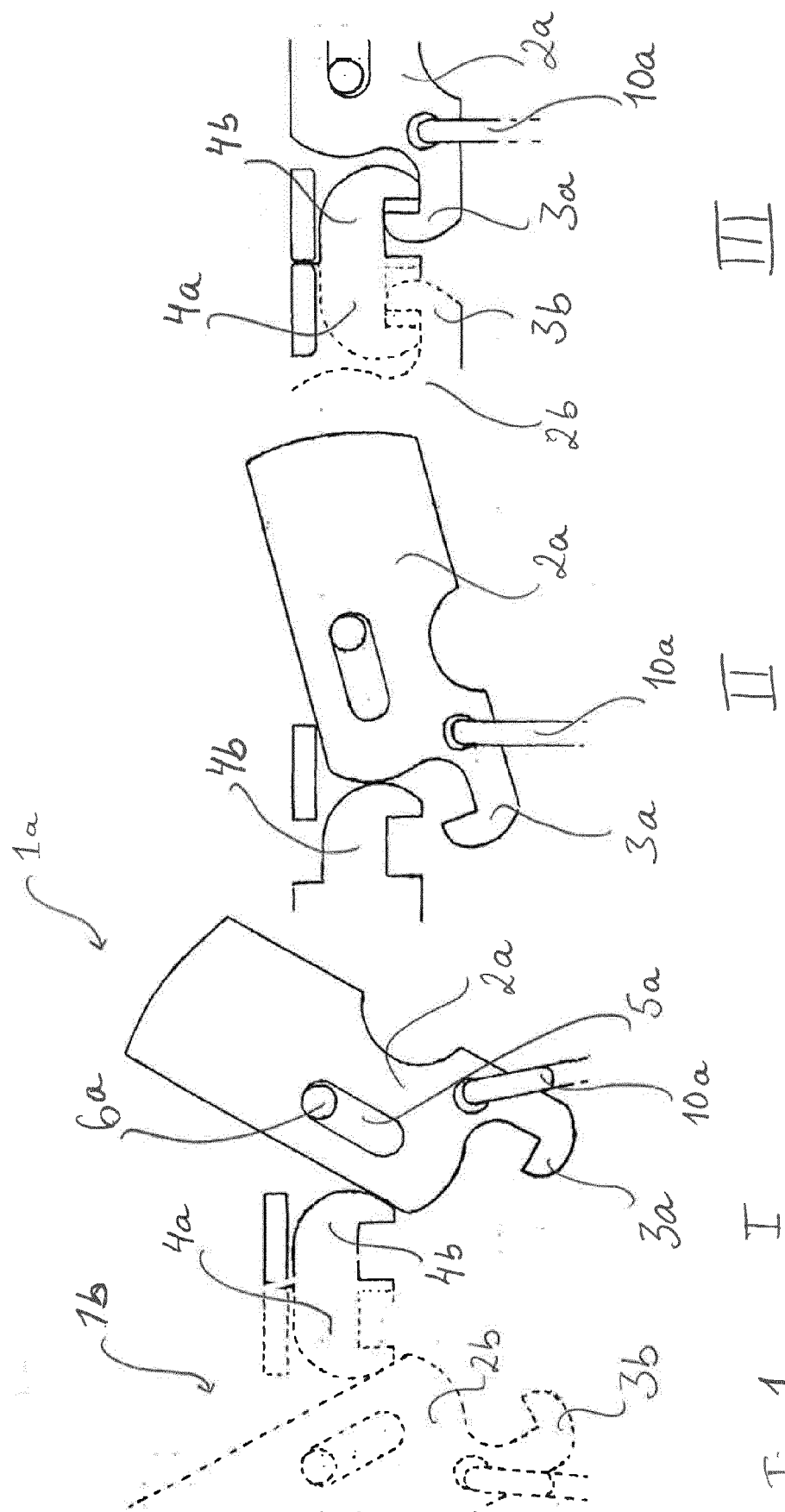
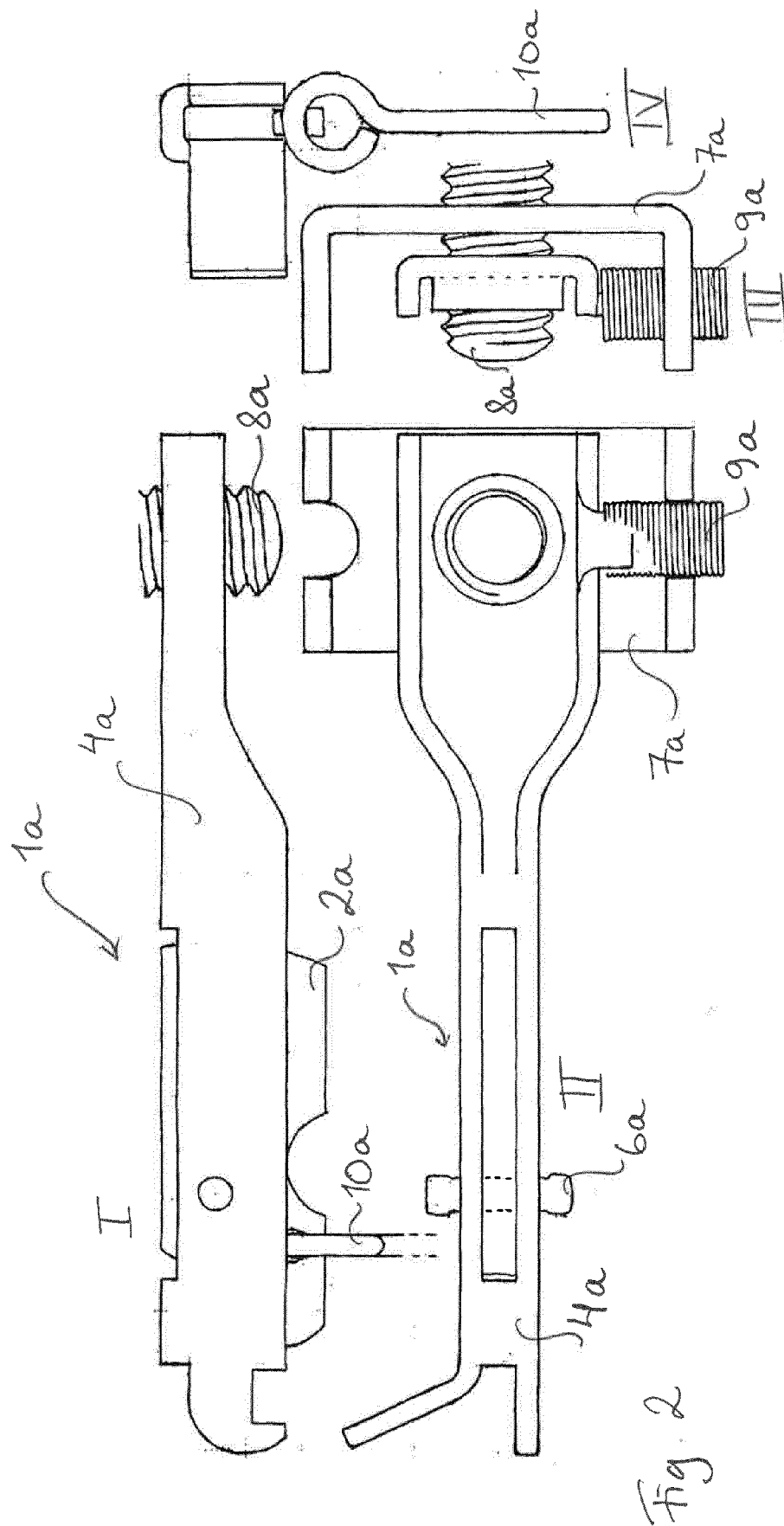


Fig. 1



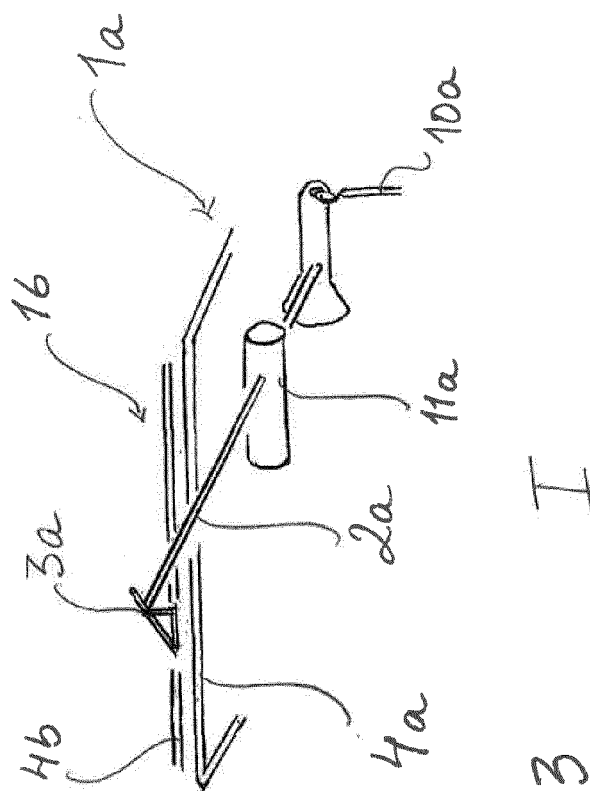
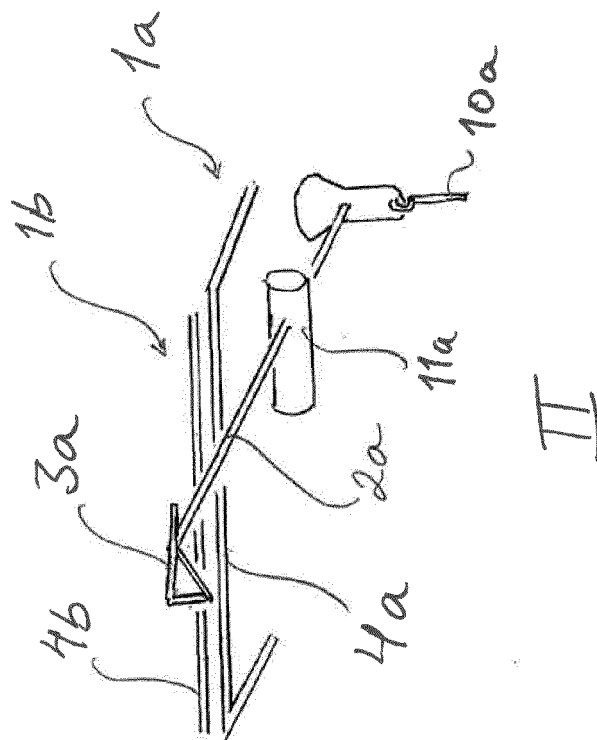


Fig. 3

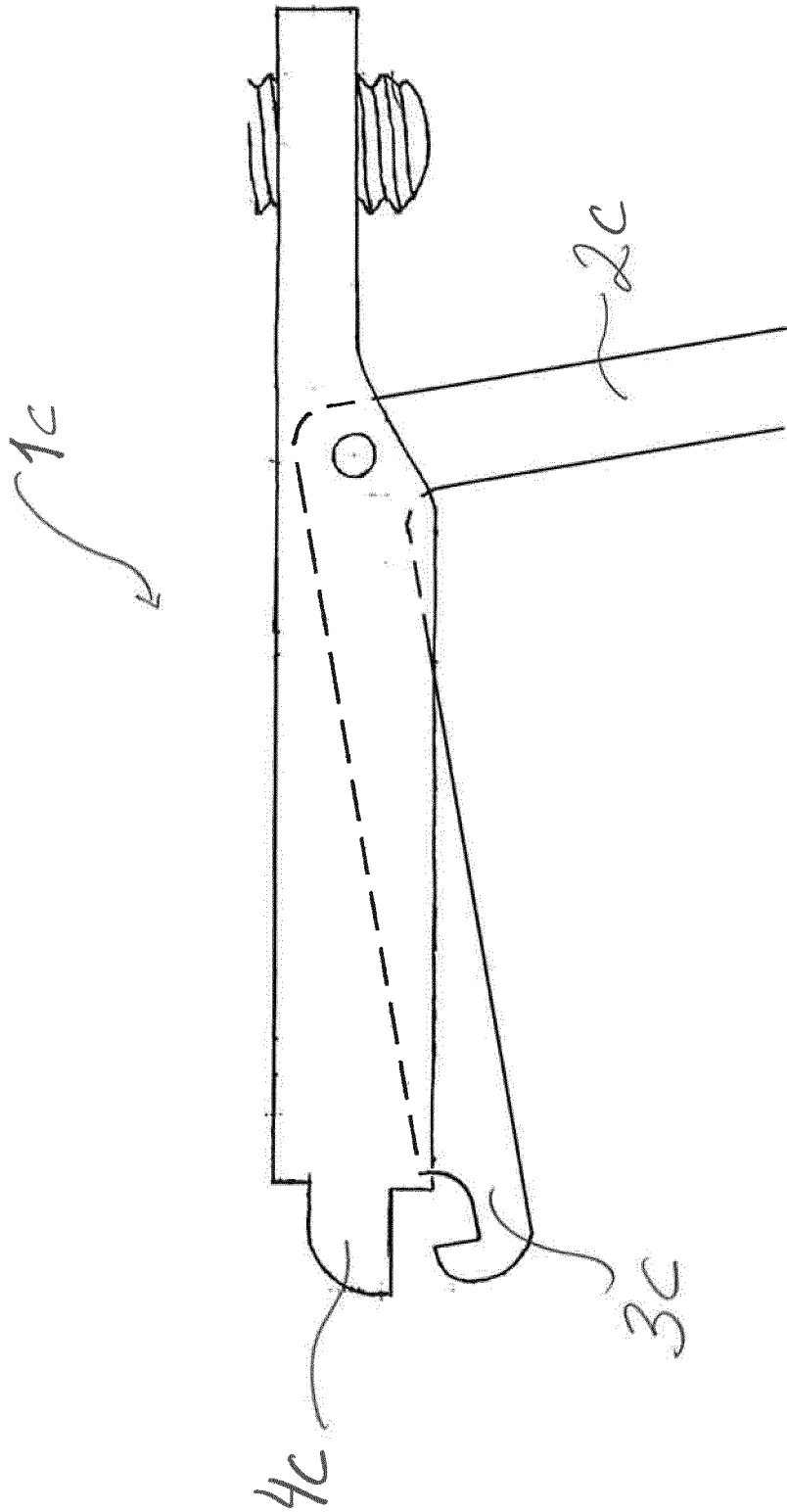


Fig. 4



EUROPEAN SEARCH REPORT

Application Number
EP 12 15 8386

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Place of search		Date of completion of the search	Examiner
Munich		13 June 2012	Lucas, Peter
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

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13-06-2012

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