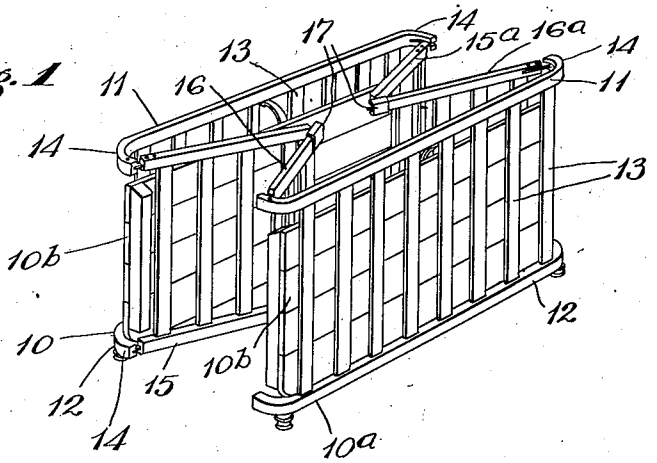
Oct. 11, 1938. V. LEIBO 2,132,988

SELF LOCKING COUPLING

Filed Aug. 8, 1935

Fig. 1



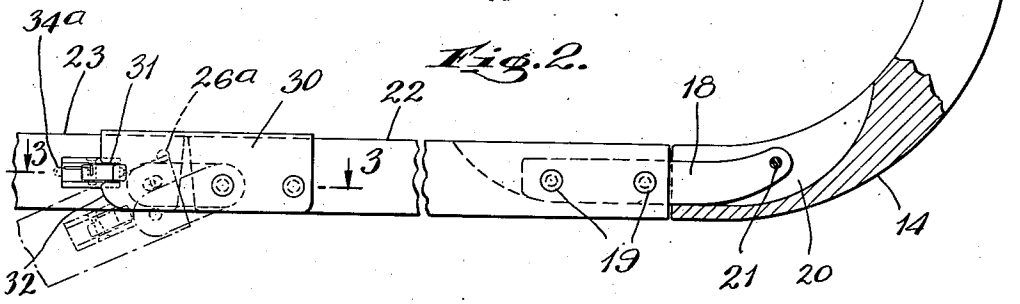




Fig. 2.

Fig. 3.

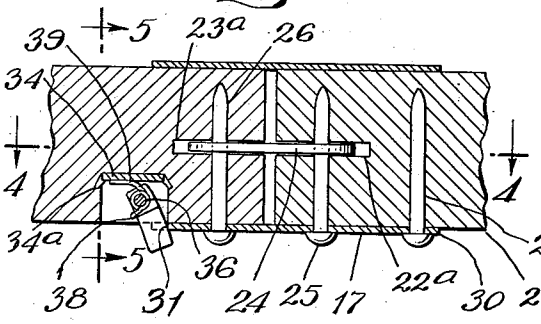



Fig. 4.

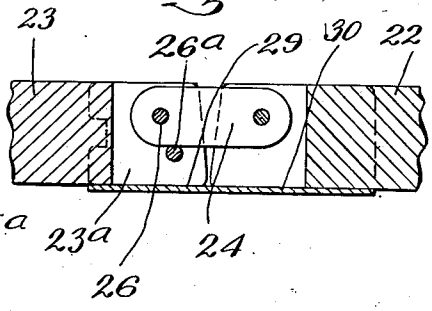
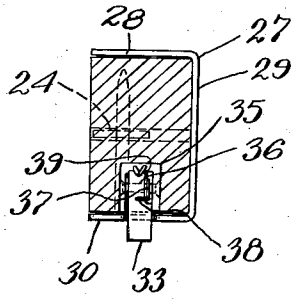



Fig. 5.




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Patented Oct. 11, 1938 2,132,988

# UNITED STATES PATENT OFFICE

2,132,988

## SELF-LOCKING COUPLING

Victor Leibo, Ridgefield Park, N. J.

Application August 8, 1935, Serial No. 35,312

3 Claims. (Cl. 287—99)

This invention relates to a device for coupling the adjacent ends of movably coupled rails, and particularly to a device of this kind incorporating means for automatically retaining the rails in predetermined alinement one with respect to the other in the operation of moving said rails relatively to each other; and the object of the invention is to provide a device of the class described comprising a coupling plate or casing with means for permanently securing the same to one part or rail, and means on the other rail automatically moved into engagement with said plate or casing to lock or retain both rails against relative movement when in predetermined alinement one with respect to the other; a further object being to provide a coupling of the class described including a hinged link plate having a pivotal mounting in each rail or part to provide free swinging movement of said rails or parts one with respect to the other; a further object being to provide a spring actuated latch or locking member for engaging the coupling casing with means involving a channel-shaped member for mounting the same in connection with a socket or apertured portion of a support; and with these and other objects in view, the invention consists in a coupling of the class and for the purpose specified, which is simple in construction, efficient in use and which is constructed as hereinafter described and claimed.

The invention is fully disclosed in the following specification of which the accompanying drawing forms a part, in which the separate parts of my improvement are designated by suitable reference characters in each of the views, and in which:

Fig. 1 is a perspective view of a play yard illustrating one method of carrying my invention into effect.

Fig. 2 is a bottom plan and sectional view of a part of the rail structure of the yard shown in Fig. 1.

Fig. 3 is a partial section on the line 3—3 of Fig. 2 on an enlarged scale.

Fig. 4 is a section on the line 4—4 of Fig. 3; and,

Fig. 5 is a section on the line 5—5 of Fig. 3.

For the purpose of illustrating one method of carrying my invention into effect, I have indicated in Fig. 1 of the drawing a play yard of the general type disclosed in an earlier application for Letters Patent of the United States filed by me December 10, 1934, Serial Number 756,807.

This yard consists of two similar end frames 10, 10a each having top and bottom rails 11, 12 joined by vertical bars or slats 13, the ends of the rails 11 and 12 being curved or rounded as indicated at 14. At 15, 15a, 16, 16a I have shown pairs of hingedly coupled side walls which are hingedly coupled with each other by means of my improved coupling devices 17. The free ends of said side frames are hinged to the curved end portions of the end frames 10, 10a in the manner clearly illustrated at the right of Fig. 2 of the drawing. A hinge plate or arm 18 is secured to the free ends of the walls 15, 16, 15a, 16a or the top and bottom rails thereof by suitable pins or screws 19. The plate or arm 18 projects into a recess 20 formed in the curved ends 14 of the top and bottom rails 11 and 12 and are pivotally supported therein on a pin 21.

To simplify the illustration and description, the showing in Figs. 2 to 5 inclusive will serve to represent any of the top or bottom rails of the respective frames. In these figures 22 will designate one of the rails, for example, of the side wall 15, and 23 will designate one of the rails of the wall 16. The adjacent surfaces of these rails are provided with transverse slits or openings 22a, 23a substantially centrally thereof in which a hinged link 24 is mounted. The link is pivotally supported in connection with each rail by pins 25 and 26 respectively. Mounted on the adjacent end portions of the rails 22 and 23 and secured to the rail 22 is a yoke-shaped coupling plate or frame 27, the top plate 28 of which overlies the upper surfaces of the rails 22 and 23; the side plate 29 overlies the inner side surfaces of said rails; whereas the bottom plate 30, in the construction shown, has the pin 25 passed therethrough together with another pin 25a for securing the coupling or housing 27 to the rail 22. It is understood at this time that any means may be employed for attaching the housing to said rail, for example, rivets may be employed to extend through both the top and bottom plates 28 and 30. The end portion of the bottom plate 30 of the housing which extends onto the lower surface of the rail 23 is provided with an elongated aperture 31 opening through said end of the plate. The outer corner portion of said plate is rounded to form a cam surface 32 to cooperate with a latch or lock member 33 in the operation of automatically coupling the rails 22 and 23 together to retain them against relative movement.

The member 33 is in the form of an arm mounted in a channel-shaped support 34 which is countersunk in a socket or aperture 35 formed in the lower surface of the rail 23 and is rotatable on or free to swing on a pivot pin 36. One side of

the pivot end of the arm 33 is cut out to receive a coil spring 37, one end 38 of which is offset to engage the surface of the arm beyond the pivot and the other end portion 39 of which rests upon the bottom wall of the support 34. This spring serves to normally urge the member 33 in the direction of the end of the rail 23 so that in the operation of swinging the rails 22 and 23 into the full line position shown in Fig. 1, the member 33 will strike the cam surface 32 and be forced outwardly, and then will automatically be moved inwardly into the notch or aperture 31 in the end of the plate 30.

The bottom or crosshead wall of the support 34 has at its ends outwardly projecting prongs 34*a* which provide means for retaining said support against displacement from the socket or aperture 35. The support is simply forced into said socket and will be automatically held in place or against accidental displacement by said laterally extending prongs 34. I also preferably provide a stop pin 26*a* which passes transversely through the slot or aperture 23*a* of the rail 23 to engage one side of the hinge link 24 to limit relative swinging movement of said link in one direction upon the pivot pin 26 in order to facilitate the automatic locking of the rails 22 and 23 one with the other.

In the specific use of my invention illustrated in Fig. 1 of the drawing, the side walls 15, 16, 15*a*, 16*a* are collapsible substantially within the boundaries of the end walls 10, 10*a* when the play yard or enclosure is in fully collapsed position. In this position, the rails 22, 23 assume a position substantially parallel to each other. When it is desired to open the yarn, the end rails are separated one from the other and in this operation, the side walls 15, 16, 15*a*, 16*a* are automatically moved outwardly. On the completion of this outward movement, the several latch or lock members 33 of the top and bottom rails of both side wall structures will move into the locked position within the notches or apertures 31, in which position, said walls are retained against inward folding movement or collapsing. It is not essential that the lock and coupling 17 be applied to both or top and bottom rails of the end wall structure, and this is especially true when the play yard includes the bottom or floor wall portions 10*b* which are hingedly supported to the lower portions of the end walls 10, 10*a*.

In returning the enclosure from an open to a collapsed position, the members 33 must be moved out of engagement with the apertures or notches 31 against the tension of the springs 37 by hand. The U-shaped coupling plate 27 also serves to shield and guard the inner surface of the coupling ends of the rails 22 and 23 and the hinge plate 24 is preferably arranged adjacent the outer side portions of the rails to facilitate the hinge movement between said rails.

My invention is not necessarily applicable to yards of the specific kind and class illustrated in Fig. 1 of the drawing, nor is my invention necessarily applicable to articles of manufacture of this kind and class, and the particular couplings employed may be of such size, shape or contour as to adapt them to the specific intended uses.

Having fully described my invention, what I claim as new and desire to secure by Letters Patent, is:

1. A coupling for securing adjacent end portions of hingedly coupled rails, said coupling comprising a channel-shaped plate, one end portion of which is secured to one rail and the other end portion of said plate being adapted to project over the joint in said rails when said rails are in extended position, a spring actuated arm imbedded in and projecting from the second mentioned rail and adapted to cooperate with one wall of said channel-shaped plate, said wall of the channel-shaped plate having a notch into which said arm is adapted to pass in securing the rails together against relative movement, the notched end of said plate having a cam surface adapted to engage said arm to guide the same into said notch in the operation of securing the rails together, and a metal support member embedded and frictionally held in said second rail to provide a pivotal support for said spring arm.

2. A coupling for securing adjacent end portions of hingedly coupled rails, said coupling comprising a channel-shaped plate, one end portion of which is secured to one rail and adapted to project over the joint in said rails when said rails are in extended position, a spring actuated arm imbedded in and projecting from the second mentioned rail and adapted to cooperate with one wall of said channel-shaped plate, said wall of the channel-shaped plate having a notch into which said arm is adapted to pass in securing the rails together against relative movement, the notched end of said plate having a cam surface adapted to engage said arm to guide the same into said notch in the operation of extending the rails, and a U-shaped metal support imbedded and frictionally held in the second named rail to provide a pivotal support and mounting for the spring arm in said rail.

3. A coupling for securing adjacent end portions of hingedly coupled rails, said coupling comprising a channel-shaped plate, one end portion of which is secured to one rail and adapted to project over the joint in said rails when said rails are in extended position, a spring actuated arm imbedded in and projecting from the second mentioned rail and adapted to cooperate with one wall of said channel-shaped plate, said wall of the channel-shaped plate having a notch into which said arm is adapted to pass in securing the rails together against relative movement, the notched end of said plate having a cam surface adapted to engage said arm to guide the same into said notch in the operation of extending the rails, and a U-shaped metal support having pointed tangs imbedded in the second named rail to provide a pivotal support and mounting for the spring arm in the rail, said pointed tangs projecting into the material of said rail and forming means for holding the U-shaped support in the rail.

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