

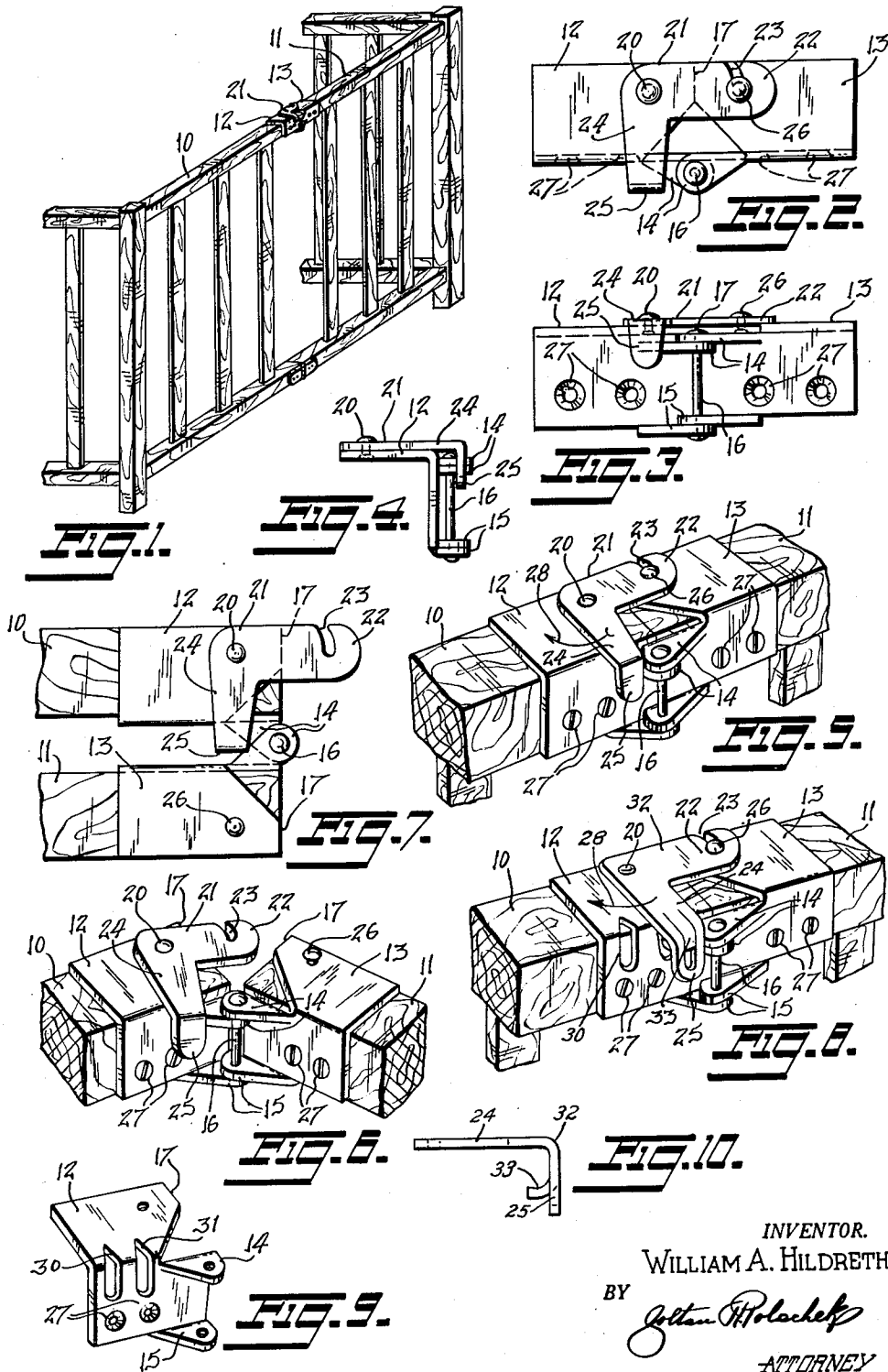
May 20, 1952

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2,597,639

COMBINATION HINGE AND LATCH FOR PLAYPENS

Filed March 9, 1950



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## UNITED STATES PATENT OFFICE

2,597,639

COMBINATION HINGE AND LATCH FOR  
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Application March 9, 1950, Serial No. 148,700

2 Claims. (Cl. 16—146)

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This invention relates to a combination hinge and lock and pertains more particularly to a hinge, the swinging components of which are adapted for unidirectional relative swinging movement, and locking means whereby said swinging movement may be prevented.

One object of the present invention is to provide means whereby hingedly connected rigid members may be locked rigid when so desired.

Another object of the present invention is to provide lockable hinging means for rigid members of collapsible constructions, such as children's play pens, which when locked will positively maintain said members rigidly connected until manually released.

Another object of the present invention, therefore, is to provide with hinging means having locking means, other means whereby said locking means may be detented in an operative or inoperative position.

Still another object of the present invention is to provide a lockable hinge arrangement which is both easily and economically manufactured.

For further comprehension of the invention, and of the objects and advantages thereof, reference will be had to the following description and accompanying drawings, and to the appended claims in which the various novel features of the invention are more particularly set forth.

Fig. 1 is a fragmentary isometric view illustrating the present invention applied to a child's play pen.

Fig. 2 is a plan view of the present invention illustrating the relative dispositions of the several components.

Fig. 3 is a front elevational view showing the pivotal connection between the hinge members.

Fig. 4 is a side elevational view showing the pendent portion formed off the bell crank or latch member.

Fig. 5 is an isometric view of the present invention illustrating the same effectively maintaining fragmentarily shown rigid members positively connected.

Fig. 6 is an isometric view of the present invention after the locking means has been released to permit relative swinging movement of the hinge members.

Fig. 7 is a plan view showing the extent of swinging movement of the hinge members.

Fig. 8 is an isometric view showing a second embodiment of the present invention.

Fig. 9 is an isometric view of the first hinge member of the second embodiment and illustrates the edge notches provided therein.

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Fig. 10 is a side elevational view of the latch member employed in the embodiment of Fig. 8.

With reference to Fig. 1, it will be seen that the present invention is particularly applicable to children's play pens for maintaining rigidly connected, when so desired, the side members 10 and 11 which with the other side components are adapted to swing inwardly and thus permit the collapsing of said pens to facilitate storage thereof.

As seen in Figs. 2, 3 and 4 also, the preferred embodiment of the invention includes a first hinge member 12 and a second hinge member 13, both of which are of L-shaped cross sections to provide top and side portions. Formed off the side portions of both of said hinge members are top and bottom ear portions 14 and 15 respectively. In order to provide relative swinging movement between said first and second hinge members, a pivot pin 16 is provided to pivotally connect same at said top and bottom ear portions. Related limiting portions 17 formed at the top portions of said hinge members limit the relative swinging movement of said members to one direction, namely inward.

Pivotally mounted, as at 20, on the top portion of the first hinge member 12, is a bell crank or latch member 21 having a first arm 22 thereof substantially coextensive with said first hinge member and including a laterally extending open slot 23. A second bell crank arm 24, formed at substantially right angles to the first, extends slightly beyond the side portion of the hinge member 12 and is provided with a pendent portion 25. Said pendent portion 25 is manipulable to position the said first arm operatively or inoperatively.

Fixedly carried on the top portion of the said second hinge member 13 is an engaging pin 26, the purpose of which will be described hereinafter. By means of countersunk holes 27, said hinge members may be securely fitted to the hereinbefore mentioned play pen side members 10 and 11.

With the hinge members attached to the pen side members, and said members in an unfolded or extended condition, as seen in Fig. 5, the limiting portions 17 on said hinge members will become engaged to thereby limit the swinging movement of said hinge members, and therefore, of said side members.

When the hinge members are in the condition just described, the engaging pin 26 in the second hinge member 13 is positioned to associate with

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the mentioned open slot 23 in the arm 22 of the operatively positioned bell crank 21.

Now the arrangement of the axes of the pivot pin 16, the pivot 20, and the engaging pin 26, are such that when the said engaging pin 26 is in association with the slot 23, in the manner hereinabove described, said bell crank or latch member will prevent any relative swinging movement between said hinge members 12 and 13. Thusly, said pen side members 10 and 11 will be maintained or locked rigidly connected.

However, when it is desired that said pen sides be swung inwardly to thereby collapse the construction, said pendent portion 25 of the bell crank 21 is pressed sidewardly to thereby rotate said bell crank in the direction of arrow 28 in Fig. 5. This operation disassociates said slot 23 and engaging pin 26 (Fig. 6), to thereby permit said hinge members 12 and 13 and the pen side members 10 and 11, to swing relative to each other to thereby assume substantially parallel positions (Fig. 7).

A second embodiment of the invention, as seen in Fig. 8, provides means whereby the latching member may be retained in either the operative or inoperative positions thereof, to assure the effectiveness of said latch when in its operative position, and to prevent said latch from proving bothersome when in its inoperative position, and folding of the play pen takes place.

Said second embodiment is similar to the above described first embodiment in that it, too, includes first and second hinge members 12 and 13 respectively, top and bottom ear portions 14 and 15 respectively, a pivot pin 16 pivotally connecting said hinge members at said ear portions, limit portions 17 and an engaging pin 26. However, unlike said first embodiment, the present arrangement includes first and second notches 30 and 31, respectively, in the edge between the top and side portions of the aforementioned first hinge members 12 (Fig. 9). As seen in Figs. 8 and 10, the latch member 32 of the present embodiment, like that of the first, is pivotally mounted as at 20, to the first hinge member 12 and includes a first arm 22 having a laterally extending open slot 23, a second arm 24 extending at substantially right angles to said first arm, and a pendent portion 25 formed off the mentioned second arm 24. However, cut from the second arm 24 and the pendent portion 25 of the present latch member there is a finger 33, which finger is resilient in consequence of the inherent resilience of the material from which the latch member 32 is formed. The finger 33 has its free rounded end portion bent to extend at right angles to the pendent portion 25.

The present arrangement is such that when the latch member 32 is operatively positioned, as seen in Fig. 8, for maintaining the play pen side members 10 and 11 rigidly connected, in the manner described above with regard to the first embodiment, the free rounded end of the resilient finger 33 will be seated in the notch 31 in the first hinge member 12. Thusly, the latch member 32 will be maintained in its operative position until manually released.

When it is desired that the play pen be collapsed, pressing the pendent portion 25 sidewardly will cause the latch member 32 to rotate in the direction of arrow 28, to disassociate the open slot 23 with the engaging pin 26 and to simultaneously seat the free rounded end of the finger 33 in the notch 30. In this manner, said latch member 32 will be maintained in its in-

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operative position and will not tend to swing into operative position to thereby prove bothersome to the collapsing of said pen. The roundness of the free end of the finger 32 functions as a cam to lift the free end out of the notch 30 or 31 when the latch member 32 is moved in one direction or the other.

With the hereinabove described invention employed at both sides of a child's play pen, said pen may be maintained erected against a child's tugging, which may ordinarily cause the side members to fold inwardly, and said pen may be easily collapsed for storage, when desired.

While I have illustrated and described the preferred embodiments of my invention, it is to be understood that I do not limit myself to the precise constructions herein disclosed and the right is reserved to all changes and modifications coming within the scope of the invention as defined in the appended claims.

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

1. A combination hinge and lock for children's play pens comprising a pair of hinge members, each hinge member having a top portion and a side portion, a pair of ears bent off the side portion of each of said hinge members, a pivotal connection between said hinge members at said ears, related limiting portions formed at said top portions and engageable for limiting pivoting of said hinge members in one direction, a pin carried on the top portion of one of said hinge members; a bell crank pivotally carried on the top portion of the other of said hinge members, said bell crank having an open pin engaging slot in one arm thereof, a laterally extending arm, and a pendent portion formed off said laterally extending arm; said bell crank being engageable with said pin when the limiting portions of said hinge members are engaged to thereby prevent relative swinging movement in the other direction; and said pendent portion being manipulable to disengage said pin to permit pivoting of said hinge members in the other direction in which said limiting portions move apart.

2. A combination hinge and lock for children's play pens comprising a pair of hinge members, each hinge member having a top portion and a side portion, a pair of spaced hinge ears bent off the side portion of each of said hinge members, a pivotal connection between said hinge members at said ears, related limiting portions formed at said top portions and engageable for limiting pivoting of said hinge members in one direction, a pin fixedly carried on the top portion of one of said hinge members, a pair of notches cut from the edge between the top and side portions of the other of said hinge member; a bell crank pivotally carried on the top portion of said other hinge member, said bell crank having an open pin engaging slot in one arm thereof, a laterally extending second arm, a pendent portion formed off said laterally extending arm, and an inwardly projecting resilient finger cut from said second arm and said pendent portion; said bell crank being engageable with said pin when the limiting portions of said hinge members are engaged to thereby prevent relative swinging movement in the other direction; said pendent portion being manipulable to disengage said bell crank from said pin to permit pivoting of said hinge members in the other direction in which said limiting portions move apart, said finger being seated in one of said notches when said

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bell crank is engaged with said pin and in the other of said notches when said bell crank is disengaged from said pin.

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