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COMBINED GATE AND HINGE STRUCTURE

Filed Dec. 3, 1959

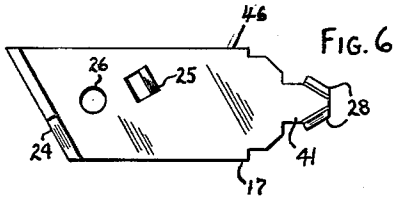


FIG. 6

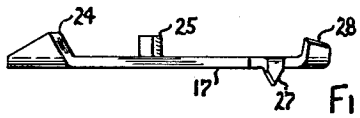


FIG. 7

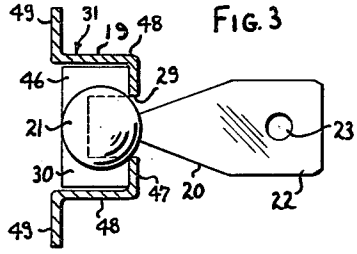


FIG. 3

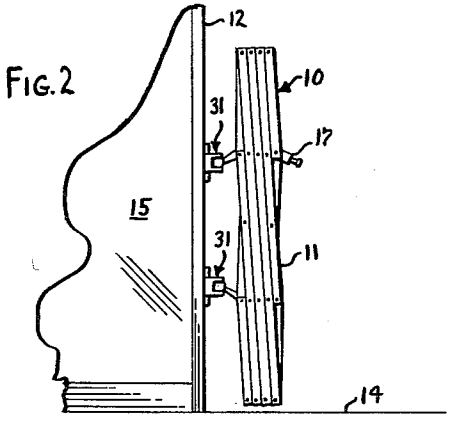


FIG. 2

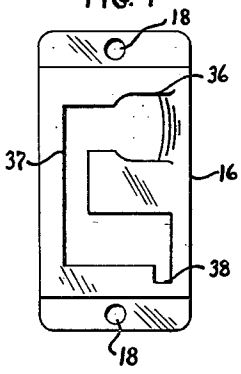


FIG. 4

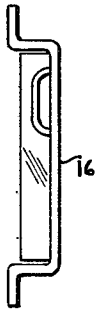


FIG. 5

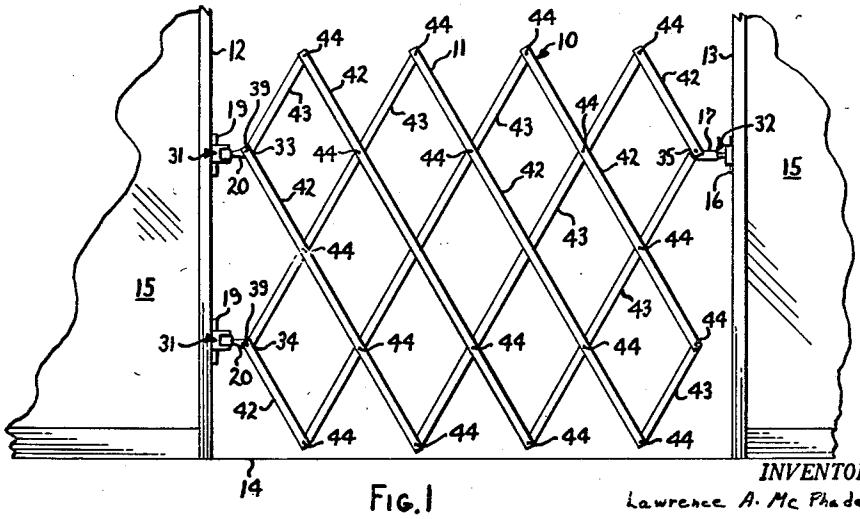


FIG. 1

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COMBINED GATE AND HINGE STRUCTURE

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This invention relates to gates and, more particularly, to gates utilized for restraining children from going from one part of a house to another.

Gates according to previous designs of the parallelogram type requiring sliding hinges as well as a rotating hinge, because of the hinge points of the gate, usually moved toward and away from each other as the gate was collapsed.

The present invention utilizes a ball and socket type of hinge in combination with a parallelogram type gate wherein the hinge itself pivots in two directions and, therefore, eliminates the necessity of a sliding hinge or, in some cases, two hinges to provide support for this type of gate. Also, an improved type of latch is provided in combination with the gate which can be released by lifting and moving the gate laterally. This type of latch provides a considerable convenience in opening and closing the gate over those provided in previous designs of latches on parallelogram type gates.

It is, accordingly, an object of the present invention to overcome the difficulties of prior designs of parallelogram type gates and, more particularly, it is an object to provide an improved combination of parallelogram type gate and hinge.

Another object of the invention is to provide an improved hinge.

A further object of the invention is to provide an improved combination hinge, gate, and latch of a parallelogram type.

Yet a further object of the invention is to provide an improved gate and hinge combination which is simple in construction, economical to manufacture, and simple and efficient to operate.

With the above and other objects in view, the present invention consists of the combination and arrangement of parts hereinafter more fully described, illustrated in the accompanying drawing and more particularly pointed out in the appended claims, it being understood that changes may be made in the form, size, proportions, and minor details of construction without departing from the spirit or sacrificing any of the advantages of the invention.

In the drawing:

FIG. 1 is a view of the invention showing the gate in a closed position;

FIG. 2 is a view showing the gate in an open position;

FIG. 3 is a partial cross sectional view of the hinge according to the invention;

FIG. 4 is a front view of one part of the latch;

FIG. 5 is a side view of the latch shown in FIG. 4;

FIG. 6 is a plan view of the other part of the latch; and

FIG. 7 is a side view of the latch shown in FIG. 6.

Now with more specific reference to the drawing, FIGS. 1 and 2 show an improved parallelogram type gate assembly 10 in its expanded and closed position. A gate 11 is made up of first bars 42 and second bars 43 which are pivoted together at their ends and intermediate parts at 44.

A hinge assembly 31 has a socket type bracket 19 and a ball type hinge member 20. The brackets 19 are shown attached to a door jamb 12. The bracket 19 is formed from a cross shaped sheet metal part by bending sides 46 at right angles to a top 47 and bending legs 48 parallel to the sides 46. Flanges 49 are formed by bending the ends of the legs 48 outwardly parallel to the top 47. An opening 29 is formed in the top 47.

A ball 21 is made as an integral part of the hinge 20 by forming the sheet metal thereof into the ball shown. The ball 21 of the hinge 20 is contained inside of a socket portion 30 of the bracket 19 and the reduced size neck portion of a body plate 22 extends through the opening 29 of the bracket 19. The ball 21 has a greater diameter than the opening 29 so that the inner edges of the opening 29 bear on the periphery of the ball 21 and the ball 21 may rotate universally therein as the gate 11 opens.

A rivet hole 23 is formed in the end of the plate 22 to receive a rivet 39 which passes through the gate members, attaching the hinge 20 firmly thereto.

With this type of gate assembly 10, hinge pivots 33 and 34 may move to a position closer together when the gate 11 is closed and further apart when it is opened than with previous gates of this type. This feature is shown in FIGS. 1 and 2.

A hinge assembly 31 will suspend the gate 11 above a floor 14 and allow it to swing freely during closing and opening. The opening 29 allows the gate 11 to swing at right angles to the door jamb 12.

A locking latch assembly 32 is made up of a latch 16 and a bolt 17. The gate bolt 17 is shown in FIGS. 6 and 7. The rear corner of the bolt 17 is bent at a right angle to form a tab 24. An ear 25 is struck from the body of the material and is bent at the same angle as the tab 24. Located between the corner tab 24 and the ear 25 is a rivet hole 26. A gate member 35 fits between the tab 24 and the ear 25 and is attached by a rivet through the hole 26. The tab 24 and the ear 25 hold the bolt 17 in a rigid position against rotation therewith. The distal end of the bolt 17 has stop tabs 27 and locking ears 28 formed by bending the outwardly extending ears at right angles to the neck. The ears also converge outwardly and toward each other. The stop tabs 27 stop the inward travel of the bolt 17 into the latch 16 and, once in a locking position, the locking ears 28 prevent the removal thereof.

The latch 16 is held in a firm position with screws extending through holes 18 and into a door jamb 13. The locking ears 28 are inserted through an enlarged portion 36 of a locking keyway 37 to a locking position 38.

An opening in any wall such as wall 15 can be closed by the gate shown in FIGS. 1 and 2.

The foregoing specification sets forth the invention in its preferred practical forms but the structure shown is capable of modification within a range of equivalents without departing from the invention which is to be understood is broadly novel as is commensurate with the appended claims.

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

1. In combination, a parallelogram type gate and hinges therefor, said hinges each having a body member swingably attached to a pivot point of said gate, a ball attached to each said body member, sockets for attaching to a support receiving said balls, said body members swinging toward each other when said gate is closed and said balls having universal movement in said sockets, a latch on said gate remote from said hinges, said latch comprising a bolt attached to said gate at an end remote from said hinges, and a catch, said catch having a slot therein with an enlarged part and a reduced size part, said bolt having a reduced size part and an enlarged part, said enlarged part of said bolt being adapted to enter said enlarged part of said slot and said reduced size part of said bolt being adapted to move into said reduced size part of said slot.

2. In combination, a parallelogram type gate and hinges, each said hinge comprising a plate, means on said plate to attach it to a gate to be supported, a ball attached to said plate, a socket receiving said ball, said socket comprising a second plate bent in U shape with the ends of the legs of said U shape bent outwardly for attaching said socket to a fixed support, the intermediate part of said U having

an opening therein, said ball being attached to said plate by means of a neck, said ball being disposed between said legs of said U with said neck extending through said opening, said gate comprising spaced first bars disposed parallel to each other and spaced second bars disposed parallel to each other and disposed in intersecting relation with said first bars, some of said first bars being pivotally connected to some of said second bars, each said plate being connected to said gate at one said pivot, each said hinge pivotally connecting said gate to said support.

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