

United States Patent

Bauer

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[54] **FRAMES LOCKABLE BETWEEN STATIONARY SUPPORTS**

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[51] Int. Cl. **E06b 5/00**

[58] **Field of Search**..160/215, 216, 217, 136, 222-228;

49/463, 465

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[57] **ABSTRACT**

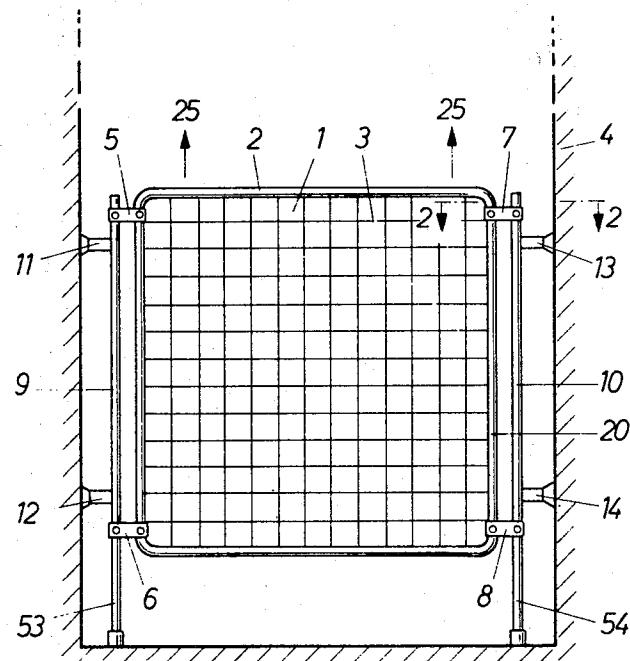
A frame, such as a guard screen in a doorway, is mounted between its supports by pivotable links which can be moved into a dead center condition, to lock the frame in effective position, by a simple push on the frame by hand.

[56] **References Cited**

1 Claim, 7 Drawing Figures

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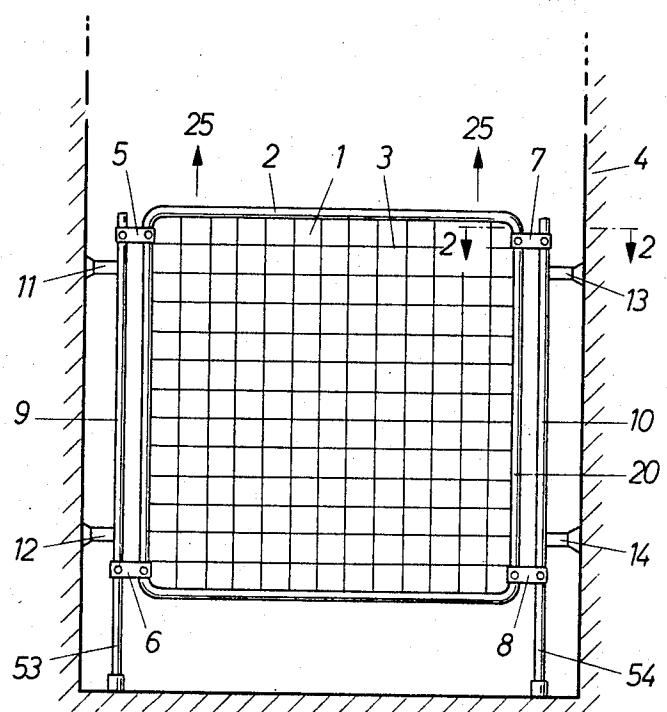


FIG. 1

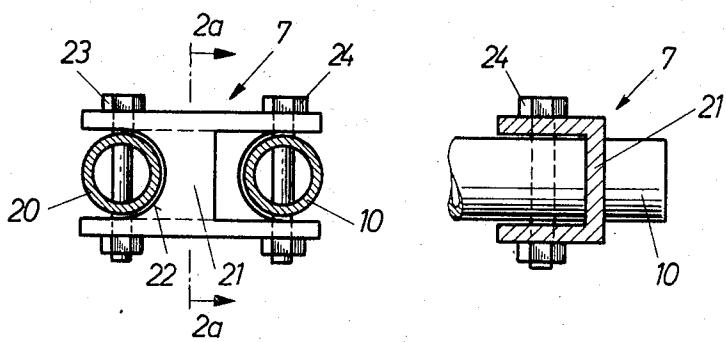


FIG. 2

FIG. 2a

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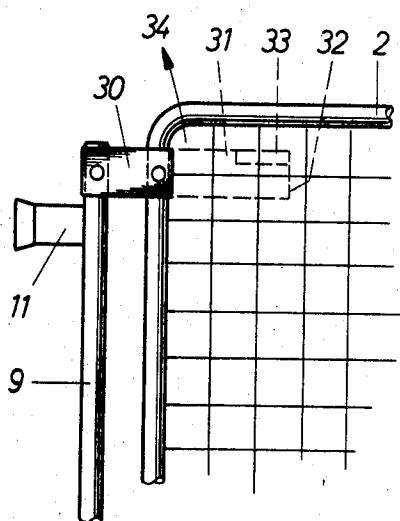


FIG. 3

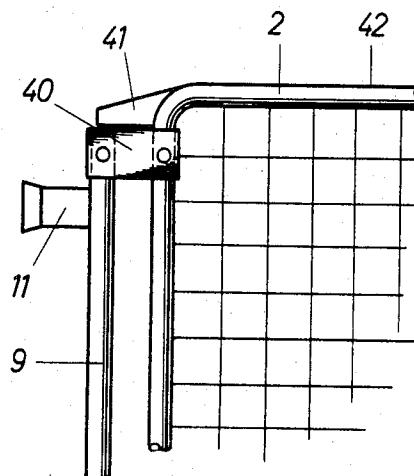


FIG. 4

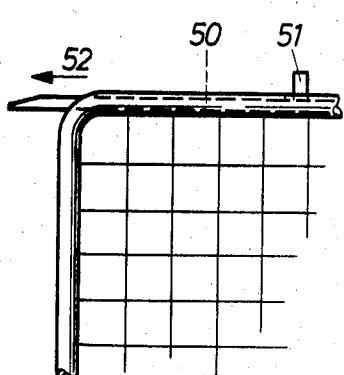


FIG. 4a

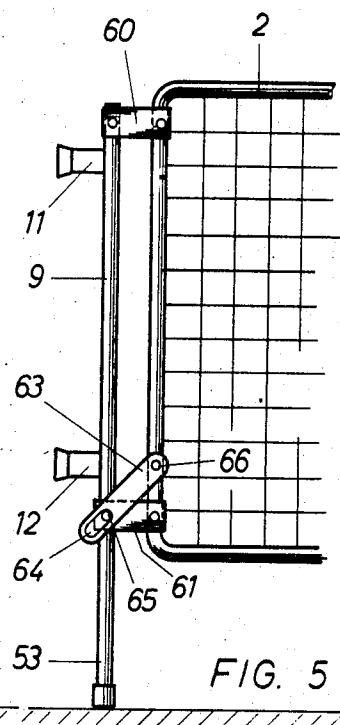


FIG. 5

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FRAMES LOCKABLE BETWEEN STATIONARY SUPPORTS

This invention relates to a frame which is lockable between stationary supports, for example a guard screen which can be inserted in doorways, and has projections which are movable towards the supports.

A frame of the kind to which this invention relates is eminently usable as a guard screen for children, for example to separate two rooms at an open doorway and prevent the child from entering the adjacent room. These guard screens can also be inserted in the surrounds of balcony doors or any other domestic areas. A further utility location is in stalls, particularly stalls for small animals. Frames of this nature are either provided with a wood or metal screen or sometimes with a plastic screen, or incorporate a taut network.

In a known form of guard screen for children the locking thereof, for example in a doorway, is implemented by having a bar which extends parallel to the upper part of the frame and can be extended, by hand adjustment, towards the surround of the doorway so that appropriate projections, which may for example be provided with rubber suction heads, are held against this doorway surround. This locking thus takes place, as indicated above, only above the frame of the guard screen, whilst the latter is supported on the ground in the usual fashion through feet rigidly connected to the frame.

This known form of child guard screen has the drawback that on the one hand the locking in the doorway surround is effected only by the two opposed rubber suction heads and the child may be able to shift the latter by applying a sufficient pressure against the bottom margin of the guard screen. Moreover the manipulation of this guard screen is somewhat complicated because the laterally extending projections are applied against the frame of the doorway by a helical or screw motion.

The object of the invention is to provide a frame to be locked between stationary uprights, and in particular a guard screen to be inserted in doorways, which is of a particularly simple construction and can be readily manipulated.

This intention is served, in the present invention, by connecting the aforesaid projections to the frame through pivotable elements such as links. This link coupling provides for the locking of the frame in its effective position by a simple application of pressure from above or from below.

In accordance with a preferred embodiment of the invention the links of at least two projections are connected together by a bar or the like.

The bar connection of a plurality of projections disposed in the plane of the frame caters, by virtue of the link system, for instantaneous locking of the frame in its effective position, for example simultaneous locking of at least two projections arranged at one side thereof; should there be a symmetrical arrangement of links at the opposite sides of the guard screen, a simple vertical application of pressure on the screen will produce a simultaneous locking at at least four points in the doorway frame surround.

This form of construction can be further improved by arranging that at least the pivots of the links which are arranged on the frame can only be moved when a

substantial degree of friction is overcome. This is aimed at preventing an unintentional movement of the links.

To prevent the links pivoting beyond the dead center position thereof when the aforesaid pressure is applied to the frame it is advantageous to provide at least one link with an abutment or the like for limiting the pivoting movement. In one form of construction the abutment may comprise a pin or the like which is displaceable on the frame, for instance over at least one of the links; again the abutment or the like may comprise a further link with a pin or the like slidably in a longitudinal slot therein; this pin or the like may represent an extension of the pivot pin of the link which is connected to the projection.

It is possible to perform the locking of the frame in other ways. It is for example suggested that at least one link may be extended, or extensible, to provide an actuating lever.

The bars or the like mentioned above may carry feet or the like which can be placed on the floor.

Advantageously the bars or the like may be arranged or pivoted at both sides of the frame.

The bars or the like can be interconnected by a lever system which is displaceable relatively to the frame.

In a further modification of the invention the links are of U-shape in cross section in the plane normal to the frame. The U-section links preferably engage the ends of the frame and are recessed correspondingly to the cross section of the frame, for example semi-circularly; the semi-circular recess may form a limiting abutment for the movement of the associated link.

Further it is possible for the frame to be extensible in one direction at least. It is admitted that the possibility of an extension of this nature is already known in connection with a guard screen for children, but this has previously been arranged directly on the projections so that before this known form of guard screen is locked in the doorway the projections themselves have first to be adjusted to the appropriate frame distance and the locking only then performed by the lever movement. In contrast to this, in the present invention the frame itself can be extended and this, not only in the horizontal direction, but if desired also in the vertical direction.

It is preferred with a frame according to the invention, particularly a guard screen, to apply rubber parts, preferably rubber suction heads, to the projections, but to facilitate the locking, springs or the like acting in the locking direction may be provided in the horizontal parts of the frame.

Embodiments of the invention have been illustrated by way of example in the accompanying drawings and will now be described. In these drawings:

FIG. 1 is a front view of a frame in accordance with the invention, shown in its effective position;

FIG. 2 illustrates a detail in cross section on line 2—2 of FIG. 1,

FIG. 2a is a section on the line 2a—2a of FIG. 2,

FIG. 3 is a detail of a modified form of the invention, FIGS. 4 and 4a show a detail of yet another modified form, and

FIG. 5 shows parts of a fourth embodiment of the invention.

The frame 1 in the examples illustrated is a guard screen of square form and comprises a tubular framework 2 with a network fixed within it. An ap-

propriate frame of wood may be used instead of the tubular metal framework 2; a grid of wood or plastics could be incorporated in place of the network 3.

In FIG. 1 the frame 1 of the invention is disposed in a doorway 4. Links 5, 6 and 7, 8 respectively are arranged at the two vertical parts of the tubular framework 2 for locking the frame in effective position, the other ends of these links being pivotally connected in pairs to a bar 9, 10 respectively. Provided on the bar 9 are projections 11 and 12 with rubber suction heads, and corresponding projections 13 and 14 are arranged on the bar 10, for attaching the bars 9 and 10 to the supports, viz. the side walls of the doorway.

The frame is shown in FIG. 1 in its effective position, that is to say in a position in which the links 5 to 8 have arrived at a substantially horizontal position (that is to say almost the dead center position). The links are of U-section, as can be seen from FIGS. 2 and 2a, and particularly in the area between the bar 10 and the corresponding part 20 of the framework 2.

The upper, i.e. vertical, web part 21 of link 7 is hollowed approximately in semi-circular form at 22, as can be seen from FIG. 2. At one end the link is pivotally connected by screw bolt or a pin 23 to the tubular part 20 and, at the other end, by a corresponding screw bolt or pin 24 to the bar 10. The semi-circular recess 22 thereby serves to limit the movement of the link when the tubular framework 2 is pushed down into the effective position (i.e. that illustrated in FIG. 1).

When the frame or guard screen is to be released from the position illustrated in FIG. 1 it is lifted in the direction of arrows 25 so that the ends of the four links 5 to 8 pivoted to the tubular framework 2 are drawn upwards. As a consequence the frame is released from its locked position.

Instead of using the links 5 to 8 and the bars 9 and 10, at least one link 30 may, as shown in FIG. 3, be extended by a piece of flat metal 31 to one side of the tubular framework 2 to provide a hand grip. This grip can be further embellished by using at the free end 32 of strip 31 a projection 33, extending at right angles to the plane of the drawing, for engagement by hand.

FIG. 3 shows the frame or guard screen in the effective position wherein, to release the locking effect, the

flat strip 31 has to be lifted in the direction of arrow 34.

In the embodiment illustrated in FIG. 4 a projection 41 is provided above the link 40, this either being rigidly secured to the tubular framework 2, and thus providing a stop for the link 40 and the bar 9 in the dead center position, or a bar 50 (see FIG. 4a) can be arranged in the horizontal part 42 of the tubular framework 2. This bar can be withdrawn by gripping a finger piece 51 or can be reinstated in the tubular framework 2 in the opposite direction. Like the fixed stop 41, this bar 50 serves to limit the degree of pivoting of the link.

Bars 9 and 10 may, as shown in the case of the embodiments of FIGS. 1 and 5, be provided with feet 53 and 54; the frame or guard screen according to the invention may however be free of any such additions and the frame bear directly on the ground.

A further form of stop is illustrated in FIG. 5. As previously, links 60 and 61 are provided on the tubular framework 2 and are connected together through the bar 9. A further link 63 is however provided on the tubular framework 2, this having a longitudinal slot 64 in which can slide an extension of the pivot pin 65 of link 61.

FIG. 5 shows a frame or guard screen which is similar to that shown in FIG. 1 and is such that the link 63 can be turned about a pivot 66 to assume a position in which further upward movement of the bar 9 is prevented. This is brought about by the application of the extended pivot pin 65 to the upper edge of the longitudinal slot 64.

I claim:

1. A guard screen which can be inserted in an opening defined by opposed stationary supports comprising a frame having a pair of substantially vertically extending frame members, a pair of substantially vertically extending bars, suction cup means on said bars for attaching said bars to said supports, and link means pivotally attached to said frame members and said bars, each of said link means including a web portion having recesses for receiving said frame members and said bars, stopping means including a stop mounted on said frame for limiting the pivoting of said links past dead center position of said links.

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