Sept. 3, 1957 A. VAN DEN THOORN 2,805,093

CHAIN LATCH FOR DOORS AND THE LIKE

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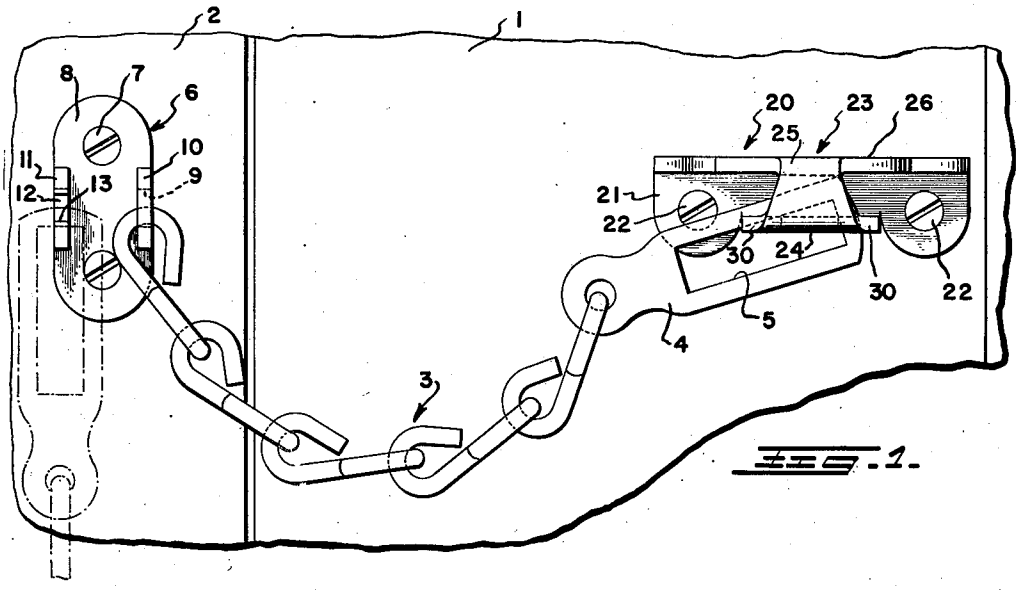


FIG. 1.

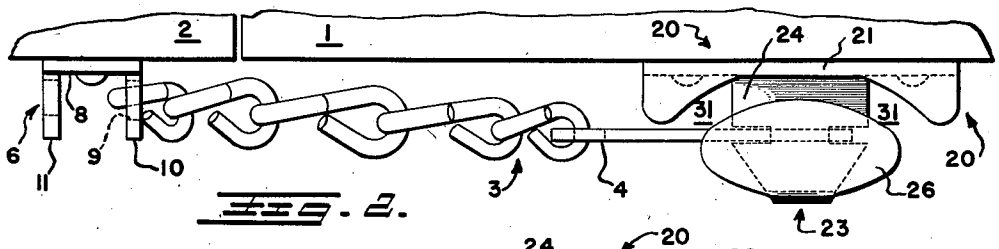


FIG. 2.

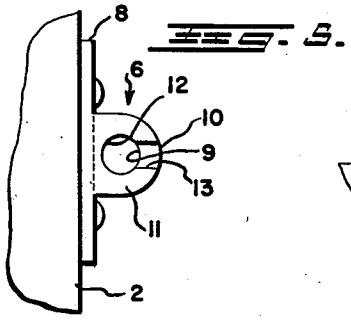


FIG. 5.

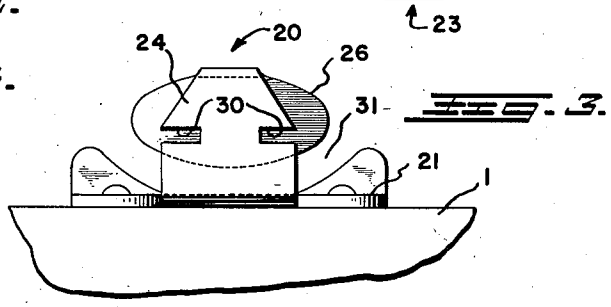


FIG. 3.

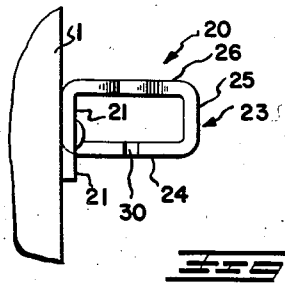


FIG. 4.

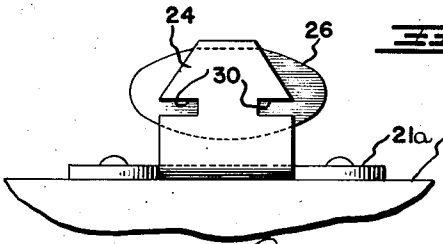


FIG. 6.

INVENTOR

Adam van den Thoorn

BY Albert H. Kirchner

ATTORNEY

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CHAIN LATCH FOR DOORS AND THE LIKE

Adam van den Thoorn, Bronx, N. Y.

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5 Claims. (Cl. 292—264)

The present invention comprises a chain latch for doors and the like and more particularly a latch of the type in which a chain, having one end permanently affixed to the jamb of a door, is adapted to have its other end detachably secured to a fitting mounted on the door, with sufficient slack in the thus secured chain to permit the door to be opened slightly, and with disconnection of the chain from the fitting mounted on the door requiring the door to be completely closed.

Important objects of the present invention are concerned with providing improvements in a device of the character indicated by which the device will be proof against disconnection at all times except when the door is fully closed, and which can be made economically by a simple stamping or other inexpensive manufacturing operation.

Other and further advantages of the invention will be evident to those skilled in the art from the following description of the preferred embodiments of the invention which are illustrated in the accompanying drawing, in which:

Figure 1 is a front elevational view of portions of a door and door jamb, showing the door in fully closed position, with a preferred form of the chain latch provided by the present invention disposed in operative, latching position;

Fig. 2 is a top plan view of the parts in the positions shown in Fig. 1;

Fig. 3 is a bottom plan view of the keeper element of the combination comprising the invention;

Fig. 4 is an end elevational view of the keeper element;

Fig. 5 is an end elevational view of the chain hanger element of the combination comprising the present invention; and

Fig. 6 is a bottom plan view of a modified form of keeper element.

Referring now to these figures, and first to Figs. 1 and 2, the reference numeral 1 designates a door, which may be of conventional wooden or metal construction common in living quarters such as dwelling houses, apartments, hotels and the like, and 2 designates a jamb against which the door moves into flush alignment when completely closed, as shown in Figs. 1 and 2.

The invention provides a chain 3, formed of any convenient number of stout links of any conventional construction, such as the five similar links shown in the figures, comprising a length of some five inches, more or less, terminating at the outer end of the chain in a specially shaped link 4 which is of flat plate-like form and provided with an oblong fully enclosed slot 5 as best appears in Fig. 1.

The other end of the chain 3 is permanently secured to a hanger 6 which is mounted on the door jamb, close to the door-receiving edge thereof, as by screws 7 passing through countersunk holes in a base portion 8. Permanent attachment of the chain to the hanger 6 may be effected by fitting the endmost of the similar links through an eye formed by a fully enclosed perforation 9 in an ear

10 outstanding from one edge of the base 8 of the hanger 6.

A generally similar ear 11 may be formed at the opposite edge of the base of the hanger, symmetrically with and parallel to the ear 10, and the ear 11 may have a perforation 12 which is opened through the ear by a slot 13 so that the link 4 at the free end of the chain 3 may be hung in the perforation 12 by slipping the extreme outer end of the link which closes the slot 5 through the slot 13 in the ear 11, to provide the hanging relationship shown in broken lines in Fig. 1.

It is in this position that the chain is disposed when not engaged in latching relation with the door 1.

The chain is latched to the door 1 by engaging the terminal link 4 with the keeper generally designated 20 in Figs. 1, 2, 3 and 4. This keeper which, like the hanger 6 may be formed as a one-piece stamping, includes a base plate 21 drilled and countersunk to receive a pair of screws 22 by which the plate is secured permanently to the surface of the door 1. Thus the base plate 21 is disposed in a vertical plane. Outstanding from the center of the bottom edge of the base plate is a return bent hook structure generally designated 23, including a bottom plate portion 24 extending horizontally from the lower central edge of the base plate portion. The outer end of this bottom plate portion is turned upwardly and reduced in width to form an upstanding neck 25, which is parallel to the base plate portion 21, and at its upper edge the neck is turned inwardly, in return bent relation to the bottom plate portion 24, to provide a top plate portion 26 which is longer than the width of the neck 25, longer than the length of the bottom plate portion 24, and longer than the length of the slot 5 in the terminal link 4 of the chain, all as shown in Figs. 1 and 2.

The bottom plate portion 24 of the keeper is provided at its opposite ends with short slots 30 which are open to the front and rear edges of the bottom plate portion.

The top edge of the base portion 21 is turned forward in the plane of the top plate portion 26 and its forward edge is curved, and the top plate portion 26 is complementally curved and spaced from the curved edge of the base portion to provide a generally arcuate slot as shown at 31 in Figs. 2 and 3.

The proportions of the parts are such that the slot 5 in the terminal link 4 can be fitted over or around the top plate portion 26 if the link be inserted in the slot 31 oblique-angularly to the length of the top plate portion 26, i. e., by turning the leading edge of the link along the curved path of the slot 31 while the link is held in a vertical plane. If then the link be turned down or twisted, it can be dropped into the slots 30, to the position shown in Figs. 1 and 2. In such position it will be noted the chain is somewhat slack, so that the door can be opened slightly without disconnecting the link 4 from the keeper 20. The relation of the length of the chain 3 to the spacing of the keeper 20 from the hanger 6 is best made such that the permissible degree of opening of the door will provide sufficient clearance between the door and jamb for a person on the inside to see and speak to a person on the outside. Moreover, as will be evident from the figures, the link 4 cannot be moved into disengagement from the keeper 20 when the slack is removed from the chain by any degree, even a very small degree, of movement of the door from fully closed position. The reason is that any such movement, which reduces the slack in the chain, makes it impossible to move the link 4 sufficiently to the right, as viewed in Fig. 1, to permit the link to be twisted and turned about the neck 25 and over the top plate 26. Such movement requires the door to be in completely closed position.

It is thus impossible for a person on the outside of the door to unlatch the chain, even with the aid of an instrumentality inserted between the door and jamb.

In this respect the device provided by the present invention is deemed to be superior to all prior art devices of this general type with which I am acquainted.

It will be observed that, as shown in Fig. 1, in the latching position the link **4** hangs at a slight inclination to the horizontal. This inclination brings the edges of the link which define the slot **5** into the two slots **30**, with the uppermost corner of the link engaged with the under surface of the top plate portion **26**. This provides a relatively rigid anchorage for the link from which it must be swung in order to free it from both slots **30** preparatory to turning it and twisting it about the neck **25** and upper plate portion **26** of the hook **23**.

Fig. 6 shows a slight modification of the keeper of Figs. 1, 2 and 3 in which the base plate portion **21***a* is not provided at its upper edge with the projections cooperating with adjacent edge of the top plate portion **26** to provide the slot **31**. However, in this form of keeper the top plate portion is curved in the same form as the top plate portion **26** of the keeper of Figs. 1, 2 and 3, and the same kind of twisting and turning movement is required for connection and disconnection of the link **4**. The only difference in operation between the two forms of keeper is that the keeper of Fig. 6 locks the guiding feature of the slot **31** of the preferred form of keeper.

While the forms shown in the drawing constitute the preferred embodiments of the invention which have been tested in practice and found to give entirely satisfactory results, it is recognized that the invention may be embodied in other and further modified forms, and that not all of the features of the preferred embodiments need be used in order to attain some of the important novel advantages of the device. All such modified forms of the invention, to the extent that they embody any of the principles of the invention as defined by the appended claims, are therefore deemed to be within the scope and purview thereof.

I claim:

1. A chain latch for doors and the like comprising a chain having a terminal link formed with a completely enclosed slot, in combination with a keeper therefor comprising a base plate adapted to be mounted in a vertical plane on a door or the like and a return bent hook outstanding from the base plate, said hook including a horizontal bottom having a slot open to one edge for penetration by the terminal link after the slot of the link has been passed over the hook and terminating in a top parallel to the bottom, extending over said slot of the horizontal bottom and having its free edge spaced from the base plate to admit said terminal link.

2. A chain latch for doors and the like comprising a chain having a terminal link formed with a completely enclosed slot, in combination with a keeper for said chain comprising a base plate adapted to be mounted in a vertical plane on a door or the like and a return bent hook outstanding from the base plate and having a horizontal bottom plate portion connected to the base plate

and having a pair of spaced slots each open to an opposite edge of said bottom plate portion for penetration by the terminal link after the slot of the link has been passed over the hook and said hook terminating in a top plate portion parallel to the bottom plate portion, extending over said slots and having its free edge spaced from the base plate to admit said terminal link.

3. A chain latch for doors and the like comprising a chain having a terminal link formed with a completely enclosed slot, in combination with a keeper for said chain comprising a base plate adapted to be mounted in a vertical plane on a door or the like and a return bent hook outstanding from the base plate and having vertically spaced horizontal bottom and top portions, said bottom portion being slotted inwardly from its opposite edges for penetration by the terminal link, with an edge of the link bearing against the under surface of the top portion of the hook, after the slot of the link has been passed over the hook.

4. A chain latch for doors and the like comprising a chain having a terminal link formed with a completely enclosed slot, in combination with a keeper for said chain comprising a base plate adapted to be mounted in a vertical plane on a door or the like and a return bent hook outstanding from the base plate and having a bottom portion disposed in a horizontal plane and directly connected to the base plate and a parallel top portion connected to the bottom portion by a neck which is narrower than said top and bottom portions and is parallel to said base plate, said bottom portion being slotted inwardly from an edge for penetration by the terminal link after the slot of the link has been passed over the hook, and said top portion being disposed directly over the slot in the bottom portion and being longer than the slot in said terminal link, whereby passing the link over the top portion of the hook requires the link to be positioned obliquely to said top portion.

5. A chain latch for doors and the like comprising a chain having a terminal link formed with a completely enclosed slot, in combination with a keeper for said chain comprising a base plate adapted to be mounted in a vertical plane on a door or the like, a horizontal bottom plate outstanding from the base plate and having a slot penetrating from an edge thereof, a top plate parallel to the bottom plate and connected thereto by a neck portion parallel to the base plate, said top plate being longer than the slot in the terminal link whereby said link must be moved in a path oblique-angularly related to the length of the top plate in order for the slot in the link to be passed over said top plate, and the rear edge of said top plate and the adjacent surface of said base plate being complementally shaped to provide a curved slot adapted to admit the link and guide its movement into said oblique-angular path.

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