COMBINATION LOCK LATCH MEANS

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This invention relates to doors, windows, and the like. In a more specific aspect this invention relates to screen and/or storm doors and latch means therefor. In still a more specific aspect this invention relates to latch means particularly advantageously used with a screen and/or storm door and employing a combination lock, or adapting a common screen and/or storm door latch for locking with a combination lock. In yet a more specific aspect this invention relates to equipping a screen door or doors of a house with latch means which functions upon the operation of or as the result of combination lock mechanism, so that children can be contained within the house while the primary doors are open and the screen doors closed.

Screen and/or storm doors and storm windows and/or windows screens for buildings, in particular dwelling houses, have been in use for a long time. These doors and windows are in many instances provided with a latch, especially doors, and it is desirable in almost all cases to have the doors latched to prevent them from blowing open, or to prevent entry into the dwelling house through the door by undesirable animals or unauthorized persons. The common latch means used on screen doors extends from the simple hook and eye, one of which is mounted on the screen door along the side thereof and the other on the door casing, to the common and standard latch having a slidable mounted bolt which is operated from either side of the door by an operator and which is usually arcuate and transverse to the side rail of the screen door. In any event, in the case of these prior art latch means, it is relatively easy for children to open the latches, by releasing the hook or releasing the latch lock normally incorporated in the usual screen door latch.

This is not only dangerous in some cases with children of tender years, but is highly inconvenient and undesirable from the standpoint of the mother, she not being able to assume that the children will stay in the house, etc. Keys, hooks and eyes, and the common pivoted latch locking means are easily mastered even by very small children. On the other hand, the common and usual combination lock having an enganging member (normally U-shaped) slidably mounted in the body of the lock, and an operator to operate the lock mechanism in conjunction with a dial face, is very difficult for a small child to master, and even those children capable of operating a combination lock can be prevented from doing so by not being told the combination to the lock. By adapting the common and widely available combination lock of the prior art to latching a screen and/or storm door, I have overcome all of the disadvantages encountered with the usual screen and/or storm door and its relatively easy to operate latch means. The new combination lock latch means of my invention can easily be embodied in separate latch means, or the combination lock can be utilized by an embodiment wherein it cooperatively functions in combination with the common and usual latch means having an operator on the outside of the door which is disposed transverse to the side rail of the screen and/or storm door. The new latch means of my invention is particularly easy and economical to make, and it is reliable and efficient in use.

The new latch means of my invention utilizes a combination lock which has an engaging member slidably mounted in the body thereof and which has an operator, usually a rotatable dial, to work the lock mechanism, such being used in conjunction with a dial. The combination lock is mounted on the door along an edge thereof, usually the side opposite from which the door is hinged and in close relation to the door casing wherein is mounted the recess or hole forming member which receives the bolt of the latch. The door has a bolt slidably mounted therein. Latch operator means is mounted and operable to operate this bolt. A connecting member which is fixed to the engaging member of the combination lock to move therewith is employed, such connecting member moving upon operation of the combination lock operator. This connecting member is positionable upon movement of the engaging member of the combination lock to prevent operation of the latch operator. The combination lock is operated to one of the locked positions to in turn lock the latch of the door against movement, that is, the engaging member of the combination lock is locked into one of its locked positions by operation of the combination lock mechanism.

It is an object of this invention to provide new door and/or window means.

It is another object of this invention to provide new screen and/or storm door means having new combination lock latch means.

Another object of this invention is to provide new latch means for storm and/or screen doors wherein common combination lock means is employed.

Yet another object of this invention is to provide new latch means for screen and/or storm doors wherein combination lock means is used in combination with common and usual latch means having an operator on the outside of the screen and/or door disposed transverse the side rail thereof.

It is another object of this invention to provide new latch means for screen and/or storm doors which cannot be operated by children of tender years, and which takes knowledge of a combination lock combination to unlatch the door, if such is latched by the combination lock being in one of its locked positions.

Still another object of this invention is to provide combination lock latch means utilizing a common and available combination lock in an easy to make and inexpensive combination apparatus which is convenient and reliable in use.

Other objects and advantages of the new latch means of my invention will become apparent to those skilled in the art upon reading this disclosure.

The drawings accompany and are a part of this disclosure.

These drawings depict a preferred specific embodiment of the new latch means of my invention, and it is to be understood that such drawings are not to unduly limit the scope of my invention.

In the drawings:

FIG. 1 is a perspective view partly cut away and partly in dotted lines of a preferred specific embodiment of the new combination lock latch means of my invention mounted on the side rail of a screen door.

FIG. 2 is an enlarged front elevation view partly cut away and partly in cross section of the embodiment of my invention shown in FIG. 1.

Following is a discussion and description of the new combination lock latch means of my invention made with reference to the drawings wherein the same reference numerals are used to indicate the same parts or structures. The discussion and description are of a preferred specific embodiment of the new latch means of my invention, and it is to be understood that such are not to unduly limit the scope of my invention.

In the drawings, FIGS. 1 and 2, is shown a preferred specific embodiment of the new combination lock latch means of my invention wherein the latch proper is separate from the door and mounted thereon, preferably on side rail 6 which is adjacent the door casing (not shown) having the common hole providing member mounted
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therein (not shown) which receives the end of the latch bolt 8 to latch the screen door 10. The engaging end portion of the latch bolt 8 is designated 12 on the drawings. The combination lock 26 is preferably mounted on the inside of side rail 6 of screen door 10, so that the latch can be locked in desirable position from the inside to keep children within the dwelling house on which the screen door 10 is mounted. As those skilled in the art can see, latch 14 can be mounted and used on a screen and/or storm window, the side rail 6 being the side rail of the screen and/or storm window.

The latch 14 has a flat housing consisting of a bottom 16, a cover 18, and sides one of which 20 has an aperture therein through which latch bolt 8 is projectable. The cover 18 is mounted on the sides of the housing in any suitable manner such as by screws 23 which can also be conveniently used to mount the latch on rail 6 of screen door 10, such rail 6 being of wood normally. Other mounting means can suitably be used for metal frame screen and/or storm doors. Cover 18 has a hole 24 therein through which the operator 25 of combination lock 26 projects, so that a combination lock can be operated from without the housing of latch 14. Also, it is desirable that dial 30 of the combination lock 26 be seen through opening 24.

Combination lock 26 is of the common and usual kind, and it can be mounted on the bottom 16 of the housing in any suitable manner, such as by welding the back of the body of combination lock 26 to bottom 16. For this reason, it is desirable that dial 14 be made of weldable metal. Combination lock 26 itself is not the invention of the applicant. Combination lock 26 has the common and usual U-shaped engaging member 32 slidably and operatively mounted in the body of the lock to move in and out thereof but rigidly mounted therein otherwise, dial 30 normally being painted or stamped onto the outside of the body. The shape of engaging member 32 has no bearing upon the latch structure or operation. This engaging member 32 slides in and out of the body portion of combination lock 26, and member 32 can be locked by the tumblers (not shown) of lock 26 against movement in the extended position shown in the FIG. 2 of the drawings, and of course, locked into position in the retracted (not shown) normally locked position. This is true of the great portion of common combination locks as diagrammatically illustrated by combination lock 26 in the drawings.

An elongated casing 34 is slidably mounted in the housing of latch 14. This casing 34 is rigidly connected to engaging member 32 of combination lock 26 and is normally secured to casing 34 and engaging member 32 such as by welding it thereto. Because of the rigid connection between 32, 34 and 34 and the rigid mounting of 28 no guide means for 34 is needed. In operation casing 34 moves back and forth as engaging member 32 of lock 26 is slid outwardly to the extended position and inwardly to its retracted position. Latch bolt 8 is slidably mounted in casing 34, and the latch bolt projects out the ends of casing 34, shown in FIG. 2. The casing 34 and latch bolt 8 are lined up so that the latching end portion 12 of the bolt is projectable out and into 28 of the housing and the aperture therein. End portion 12 projects out through this aperture when engaging member 32 and casing 34 are in their extended position (FIG. 2). Bolt 8 in the aperture helps maintain the position desired for casing 34. A helical spring 36 is mounted in casing 34 around latch bolt 8, one end of the spring being in contact with the inner end of casing 34 and the other end of the spring being in contact with raised portion 40 of latch bolt 8. This helical spring 36 is in compressions and urges latch bolt 8 into its extended position. A backing member 41 is suitably mounted in the housing of latch 14, such as by welding it to bottom 16 thereof. A helical spring 42 in compression is mounted in a recess in backing member 41, and in the other end contacts the rear end of slidably mounted casing 34. Spring 42 urges casing 34 into its extended position and thus engaging member 32 of combination lock 26 into its extended position. A latch shaft 44 and an engaging handle 46 is mounted in the housing of latch 14 and through rail 6 of screen door 10. A handle 48 similar to 46 is mounted on shaft 44 on the outside of door 16. The shaft 44 of the latch operator has a projecting portion 50 which in operation engages a knob or similar projection 52 secured to in any suitable manner such as by welding. Thus, when the latch handles 46 and 48 are moved in the direction of the arrows on FIGS. 1 and 2, portion 50 engages knob or projection 52 to slide engaging member 32 into the body portion of combination lock 28. This operation also moves slidably mounted casing 34 which contacts pin 54 in latch bolt 8 to retract latch bolt 8 against the force of spiral spring 38 and spiral spring 42. When the latch handle 46 or 48 is released, spring 42 acts to extend casing 34, engaging member 32, and latch bolt 8 into latch engaging position.

With the combination lock 26 locked by operator 26 in the position of FIG. 2, the latch 14 will be operatively locked to secure the screen door 10. With the combination lock 26 in neutral or slidable position in regard to the engaging member 32, the latch handles 46 and 48 can be used to disengage the latch to open the screen door 10. If desired, engaging member 32 of combination lock 26 can be slid into its retracted position and locked in such position by operator 26. Whereupon, latch bolt 8 will be retracted and the screen door free to swing as force thereon dictates. In any event, as is the usual case, the latch bolt 8 can be retracted by finger pressure on the end portion 12 projecting from end 28 of the housing.

As will be evident to those skilled in the art, various modifications of this invention can be made, or followed, in the light of this disclosure and discussion, without departing from the spirit of the disclosure or from the scope of the claims.

1. Latch means for a door, window, or the like, having a frame and hingedly mounted in a casing, comprising, in combination, a flat housing having a bottom, sides and a cover and securable to said frame, a dial-type combination lock having a slideably and operatively mounted member slidably and operatively secured in said housing with the dial operator of said lock projecting outwardly through an opening in said cover, an elongated casing slidably mounted in said housing and rigidly connected to said U-shaped engaging member of said lock to slide therethrough by an operating link secured thereto, a bolt slidably mounted in said last-named casing to move therewith and projecting out of same and projectable through an aperture in the side of said housing when said casing is in extended position, a first helical spring in compression mounted around said bolt in said casing and contacting same to urge said bolt into an extended position, a second helical spring in compression mounted in said housing and contacting said last-named casing to urge same to extended position and said extending member to extended position, a latch operator mounted in said housing and having a handle projecting out of said cover thereof, means secured to said U-shaped engaging member of said lock engageable with said latch operator to slidably operate said U-shaped engaging member upon operation of said latch operator to retract said bolt.

2. Latch means for a door, window, or the like, comprising, in combination, a housing having sides and a cover and securable to said door, window, or the like, along an edge thereof, a combination lock having an engaging member slidably and operably mounted in the body thereto mounted in said housing with the operator of said combination lock operably mounted on said combination lock to be operated thereon, a casing slidably mounted in said housing and connected to a member operable to retract said casing and said latch means.
in said casing and to move therewith and projecting out of said casing and projectable through an aperture in the side of said housing, helical spring means mounted and urging said bolt into extended position, helical spring means mounted and urging said casing to extended position and said engaging member to extended position, a latch operator mounted in said housing, means cooperating with said engaging member of said combination lock and with said latch operator to slidably operate said engaging member upon operation of said latch operator to retract said bolt.

3. Latch means for a door, window or the like comprising, in combination, a housing having sides and a cover and securable to said door, window, or the like, along an edge thereof, a dial operated combination lock having a U-shaped engaging member slidably and operably mounted in the body thereof and secured in said housing with the dial operator of said lock in operable position, a casing slidably mounted in said housing, said casing being operatively connected by a connecting member to said engaging member of said lock to move therewith, a bolt slidably mounted in said casing and projecting therefrom to be projectable from said housing, spring means in compression urging said bolt into the extended position and other spring means in compression urging said casing to the extended position and said attached engaging member to the extended position, and latch operator means mounted in said housing and positioned to operatively engage said engaging member, said latch operator means operable to slide said engaging member and said casing attached thereto upon operation to retract said bolt.

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