US00RE38693E

(19) **United States**

(12) **Reissued Patent**

Donald

(10) **Patent Number: US RE38,693 E**

(45) **Date of Reissued Patent: Feb. 1, 2005**

(54) **SLIDING DOOR LATCH WITH SELF-RETRACTING FINGER PULL**

(75) Inventor: **Joseph G. Donald**, El Dorado Hills, CA (US)

(73) Assignee: **Newfrey LLC**, Newark, DE (US)

(21) Appl. No.: **09/680,816**

(22) Filed: **Oct. 5, 2000**

Related U.S. Patent Documents

Reissue of:

(64) Patent No.: **5,816,629**
Issued: **Oct. 6, 1998**
Appl. No.: **08/585,430**
Filed: **Jan. 11, 1996**

U.S. Applications:

(63) Continuation-in-part of application No. 08/396,557, filed on Mar. 1, 1995, now Pat. No. 5,529,351, which is a continuation-in-part of application No. 08/210,694, filed on Mar. 17, 1994, now Pat. No. 5,452,928.

(51) **Int. Cl.**[7] **E05B 15/00**

(52) **U.S. Cl.** **292/254**; 292/191; 292/169.13

(58) **Field of Search** 292/191, 153, 292/254, 341.17, 169.13, 169.14, 169.16

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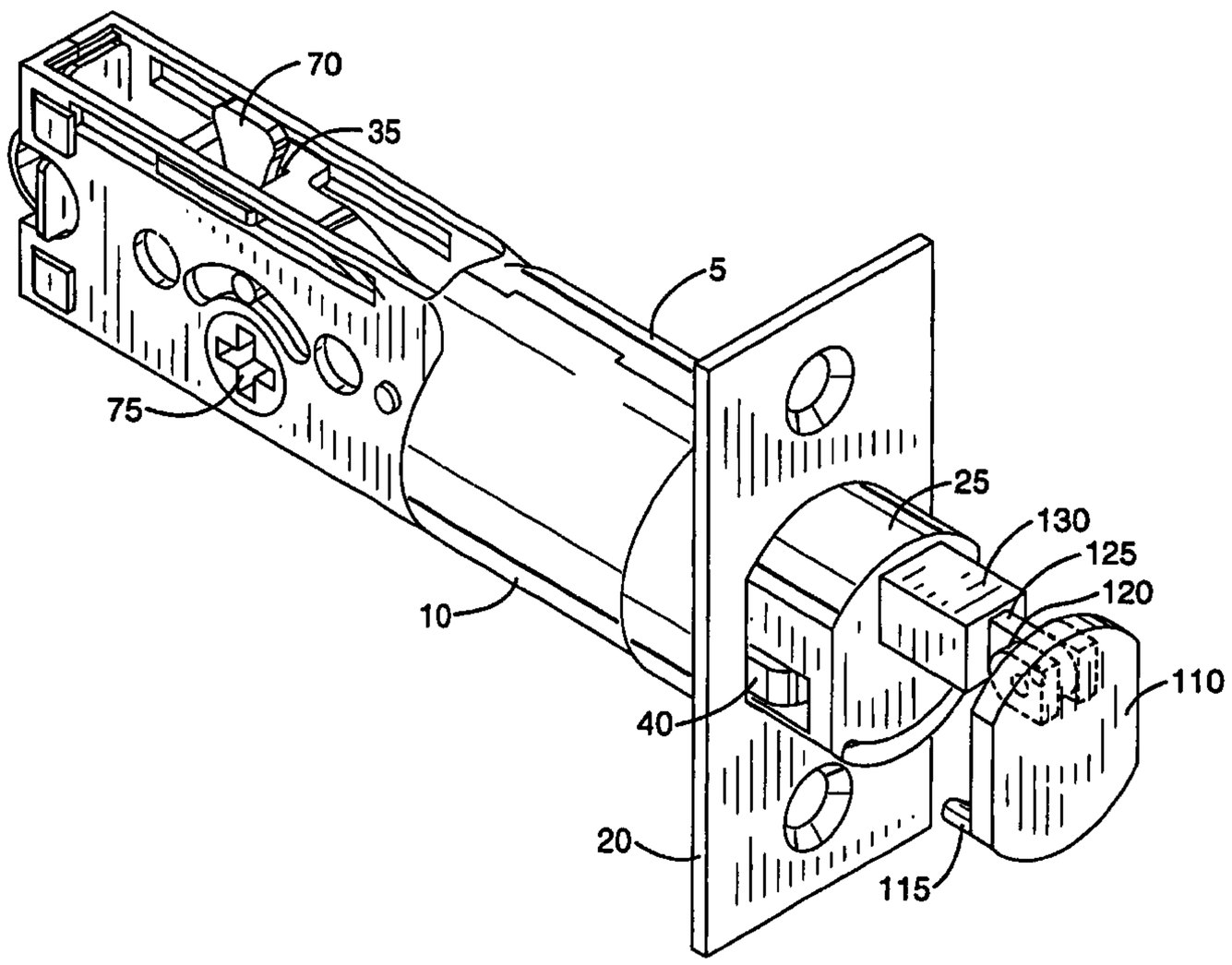
Primary Examiner—Jerry Redman

(74) *Attorney, Agent, or Firm*—Foley & Lardner LLP

(57) **ABSTRACT**

A sliding door deadbolt assembly containing a self-retracting finger pull mechanism is described. Provided is a latch assembly having a self-latching deadbolt assembly for mounting to a sliding door and latching with a strike plate mounted in a door frame and a self-retracting finger pull mechanism for accessing the sliding door from within a surrounding framework. Specified are a housing for fitting within the sliding door, a self-latching deadbolt for engaging with the strike plate means, a mechanism for sliding the self-latching deadbolt between a nonengaging position and an engaging position for latching with the strike plate, and a self-retracting finger pull mechanism comprising a finger pull member having first and second ends, a finger grasping recess proximate the finger pull member first end, a self-retracting finger pull mechanism within the self-latching deadbolt for providing access to the finger pull member and for retracting the finger pull member, and a finger pull attachment located proximate the finger pull member second end for providing a hinged connection to the self-retracting finger pull mechanism.

24 Claims, 7 Drawing Sheets



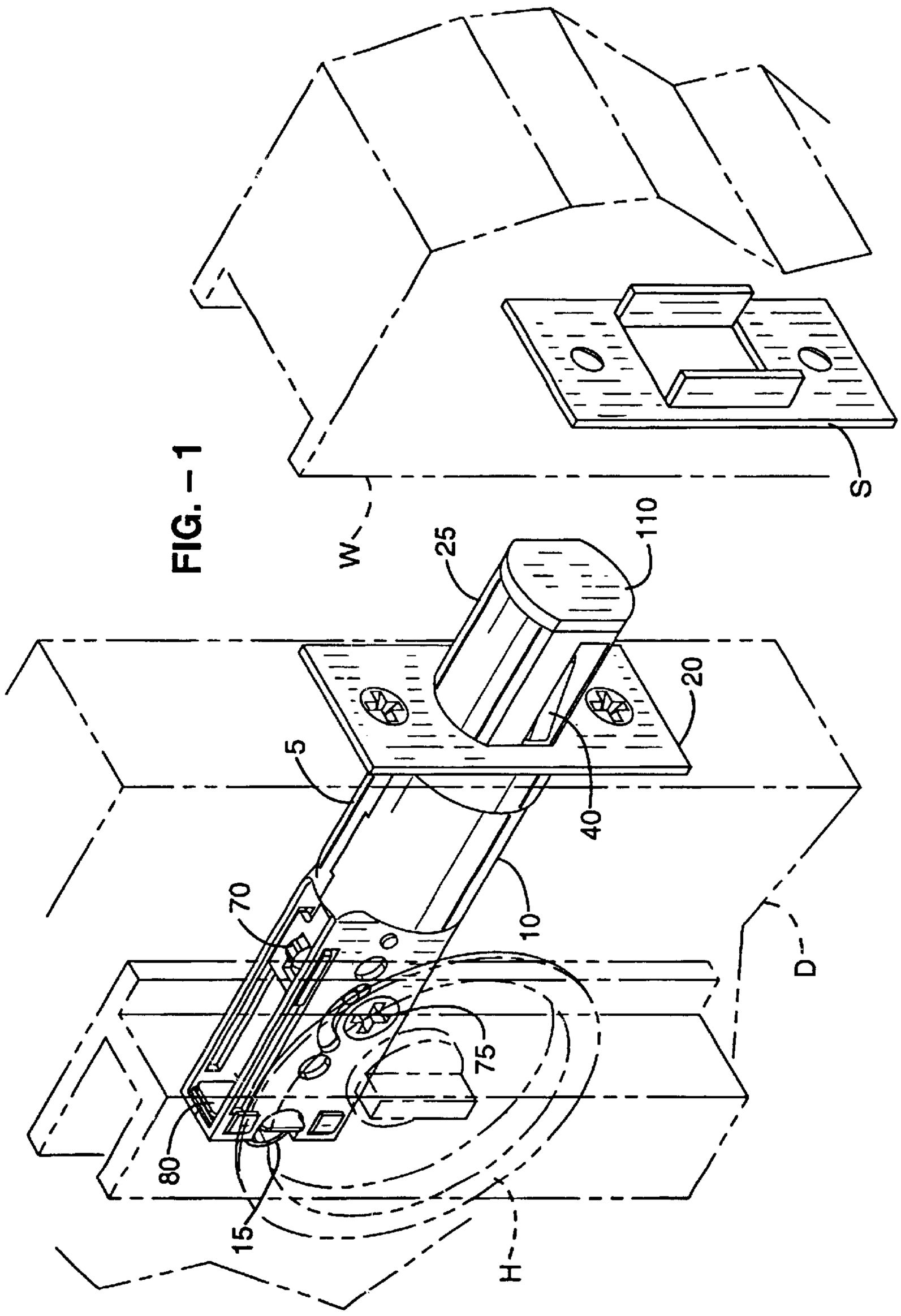


FIG. – 1

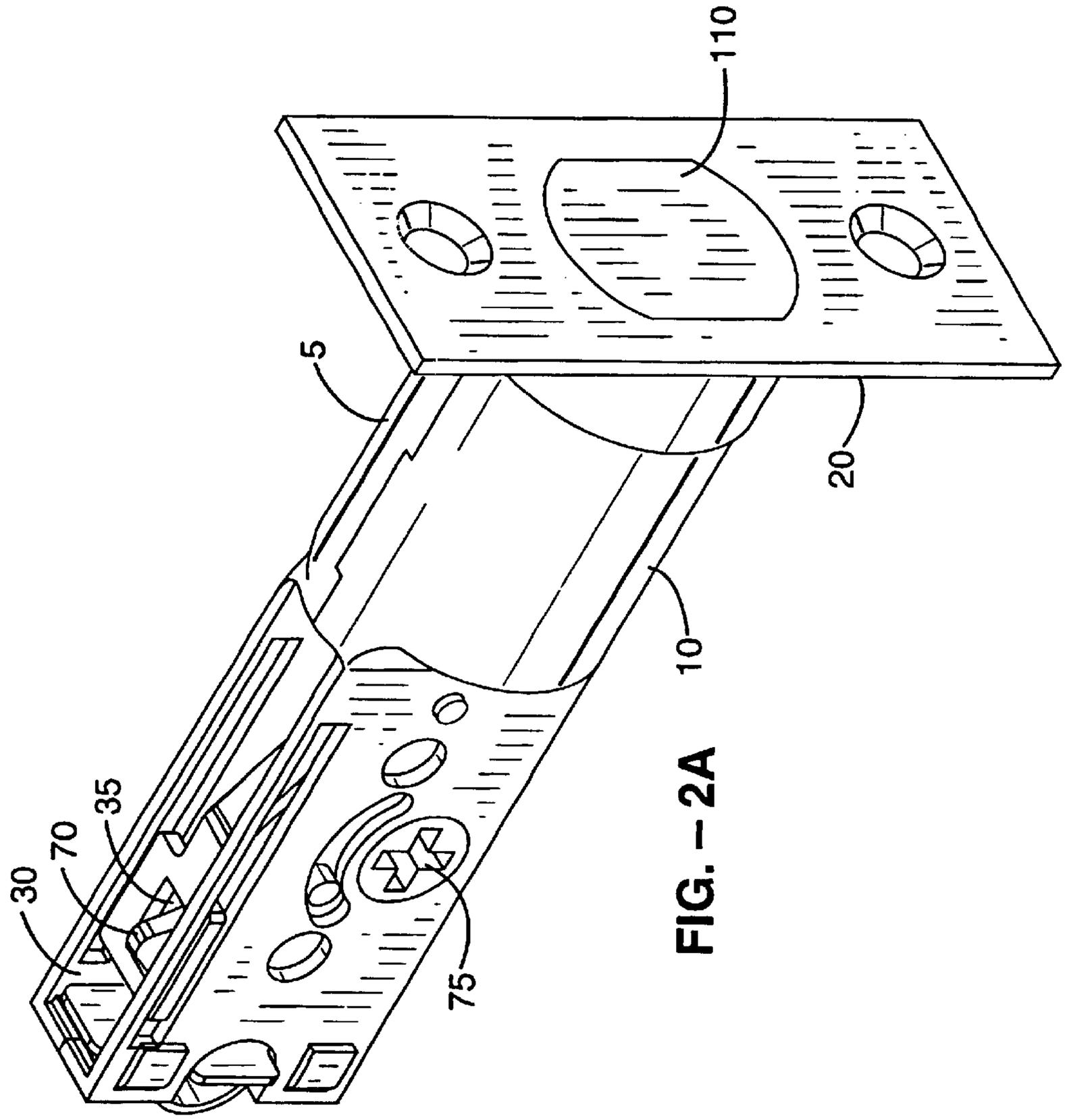


FIG. – 2A

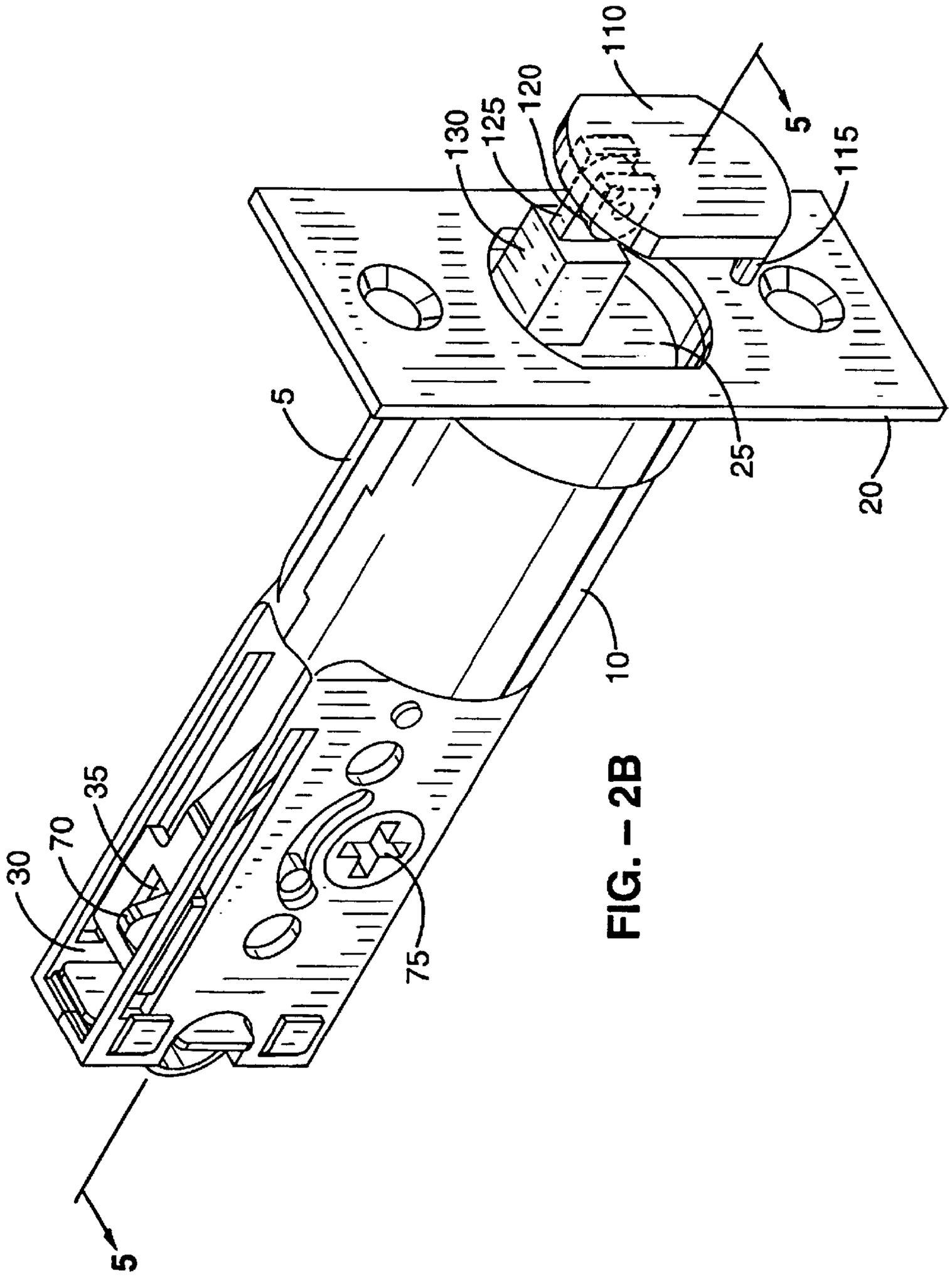


FIG. – 2B

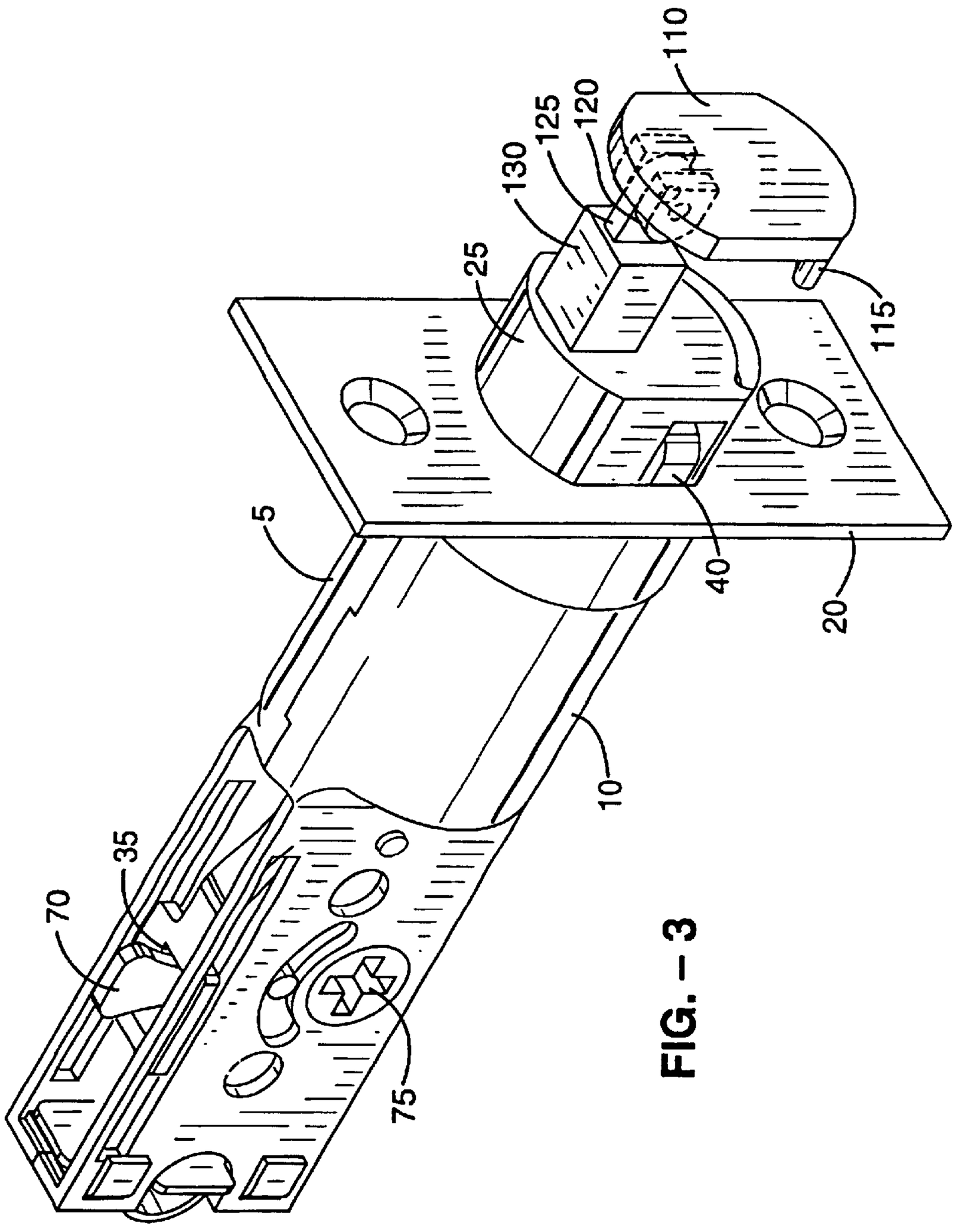
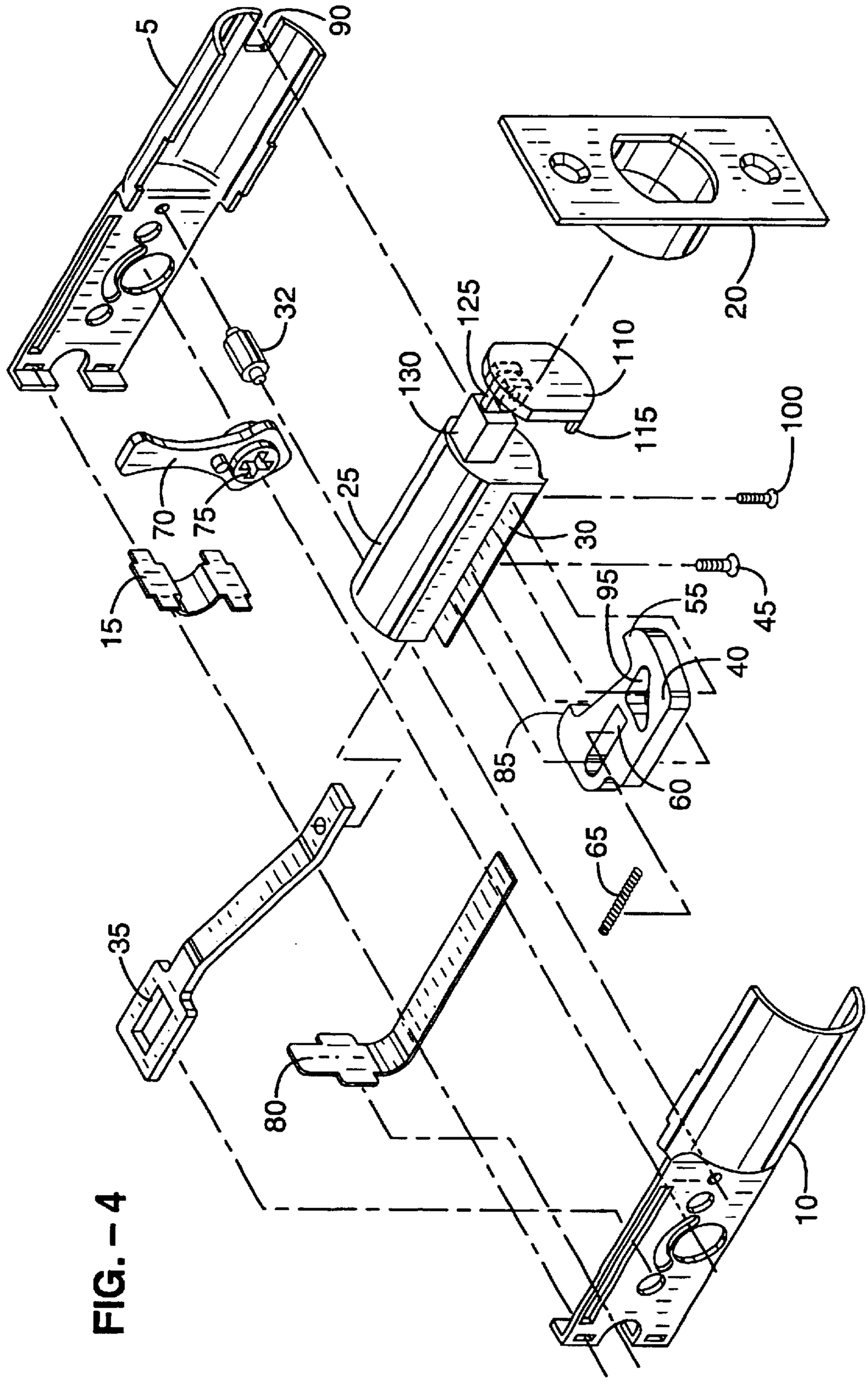


FIG. – 3


5
90
32
125
110
130
115
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85
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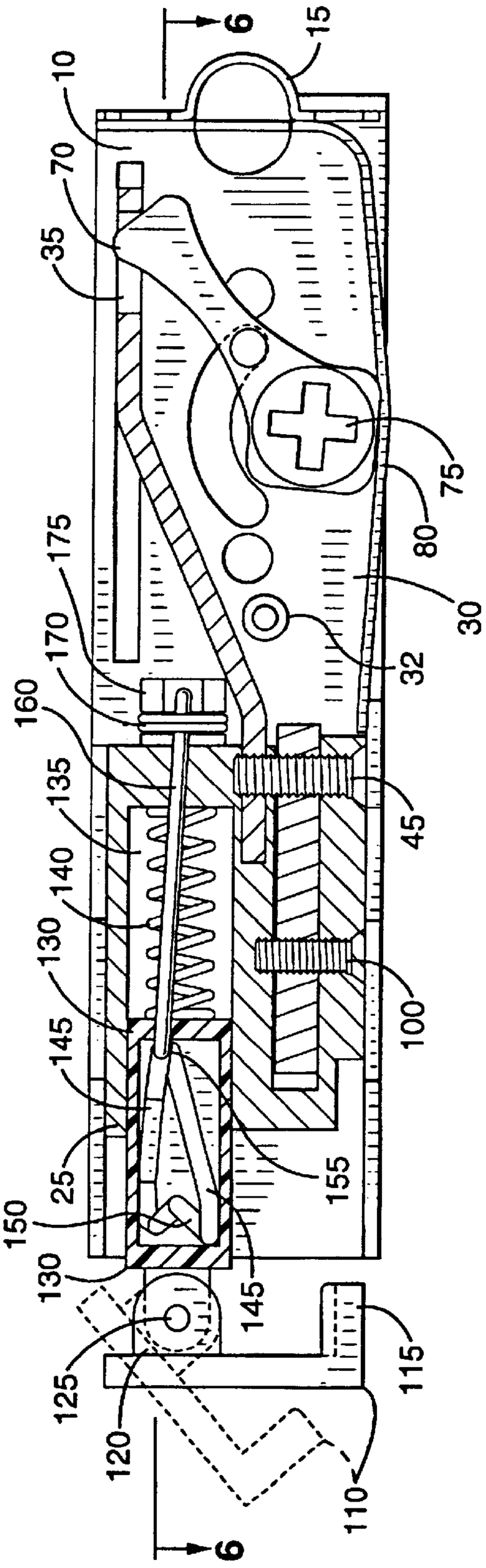
35
80
10

FIG. – 4


6
15
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70
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175
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160
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75
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FIG. – 5

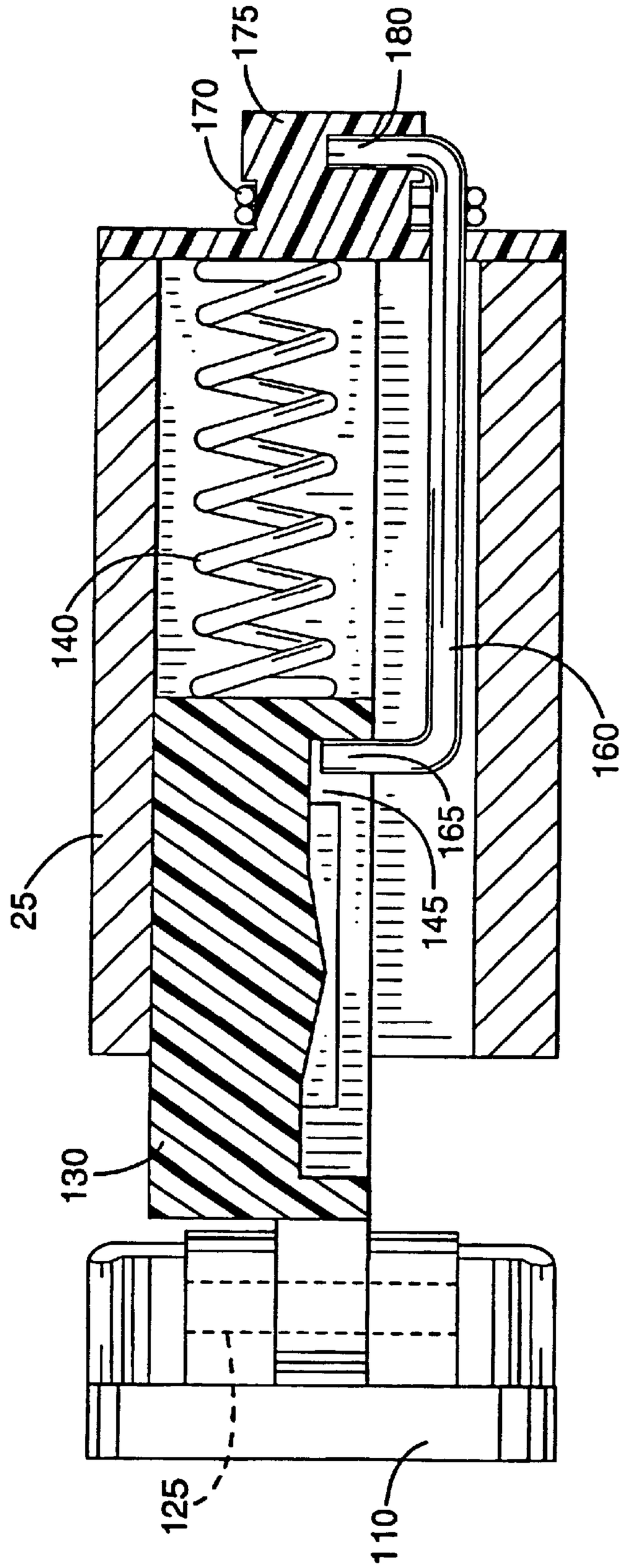

FIG. – 6

SLIDING DOOR LATCH WITH SELF-RETRACTING FINGER PULL

Matter enclosed in heavy brackets [ ] appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates the additions made by reissue.

CROSS-REFERENCE TO RELATED APPLICATIONS

This is a continuation-in-part of copending application Ser. No. 08/396,557 filed on Mar. 1, 1995 *now U.S. Pat. No. 5,529,351* which is a continuation-in-part of *08/210,694,* issued U.S. Pat. No. 5,452,928 filed on Mar. 17, **[**1995**]** *1994*.

BACKGROUND OF THE INVENTION

1. Field of the Invention

Disclosed is a self-latching mechanism for a sliding door that includes deadbolt access means or a self-retracting finger pull. More specifically, an improved latch device or self-latching deadbolt assembly for a sliding door is provided that includes, in addition to the self-retracting finger pull, a deadbolt having a single lever adapted with resilient means for engaging a strike plate. With the aid of guiding means, the latching mechanism of the self-latching deadbolt assembly functions to engage the strike plate both when the deadbolt is extended before or after closing the door. To access sliding door from within the surrounding sliding door framework, the self-retracting finger pull is fitted into the exposed end of the deadbolt.

2. Description of the Background Art

Door latches for pocket or sliding doors exist in various forms. Many of these latching means have some form of sliding deadbolt that extends, when the door is in a closed position, from within the door and into a receiving strike plate in the door frame. However, these existing latches require an additional means for accessing the sliding door from within the surrounding framework. The subject invention combines the sliding door deadbolt assembly with a finger pull access mechanism, thereby overcoming previous space, appearance, and structural limitations inherent in having both a deadbolt and an access means within the sliding door.

A type of handleless cabinet latch that is found on specific styles of cabinets to create a handle-free appearance is comprised of a mechanism having an outer frame with an internal piston. The internal piston has a magnet fixed to one end that binds a metallic plate fastened to the inside of the cabinet door thereby holding the door in a closed position when the plunger is retracted within its outer frame. The cabinet door is pushed slightly and the piston is released from within its outer frame and extends to a position in which the door is sufficiently ajar for a user to grasp the door edge as a handle for completely opening the cabinet. The internal mechanism for the piston-frame apparatus comprises a sloped track within the piston in which one end of a guide pin (the other end affixed to the outer frame) travels to permit the closed and open positions as the only options in a cyclic path that lead from closed to open or open to closed.

Specifically concerning issued patents, U.S. Pat. No. 4,566,725 relates a deadlock mechanism for a sliding door that comprises a pair of levers, each with an ear and a projecting lug. No ability for self-latching is present in this

device. As the deadbolt is thrown into the strike plate, the pair of levels extend and lock behind the edges of the strike plate. Should the deadbolt be extended before the door is closed, the projecting levers prevent the deadbolt from entering the strike plate.

Further, disclosed in U.S. Pat. No. 5,452,928, issued to the inventor of the subject invention, is a sliding door self-latching apparatus that includes, except for the self-retracting finger pull mechanism, many of the features of the subject invention. However, a limitation that is found in the '928 invention is that since the sliding door when open is completely within its surrounding frame and within the wall a separate handle or finger pull is need to withdraw the door from its compartment. The subject invention overcomes this limitation by providing an integrated deadbolt-finger pull device for accessing the sliding door.

SUMMARY OF THE INVENTION

An object of the present invention is to disclose an improved latching mechanism having a finger access means for a sliding door.

Another object of the present invention is to provide an improved sliding door latch that repeatedly, reliably, and securely holds a sliding door closed against a strike plate mounted in a door frame and provides an integrated handle or finger access means for accessing the door.

A further object of the present invention is to disclose an improved simple self-latching pocket door mechanism having a self-retracting finger pull that utilizes a guided single latching lever that engages with a receiving strike plate mounted in a door frame and a self-retracting finger pull mechanism that cycles between a retracted position which is flush within the end of a deadbolt and an extended position in which a user may employ his or her finger or fingers to exert force upon the door for sliding the door from within its surrounding enclosure within a wall.

Still another object of the present invention is to describe an improved sliding door mechanism having a self-retracting finger pull pivotally secured within a deadbolt and utilizes a single spring associated lever and guiding means also within the deadbolt for engaging and latching with a receiving strike plate mounted in a door frame.

Disclosed is a latch assembly for mounting to a sliding door and engaging with a strike plate means that comprises a housing for fitting within the sliding door, deadbolt means associated with the housing for engaging with the strike plate means, and self-retracting finger pull means associated with the deadbolt means for accessing the sliding door from within a surrounding framework. Also, included is a deadbolt extension means associated with the housing for sliding the deadbolt means between a nonengaging position and an engaging position within the strike plate means.

More specifically, the deadbolt means is usually a self-latching deadbolt means and the self-retracting finger pull means comprises a finger pull member having first and second ends, finger grasping means proximate the finger pull member first end, self-retraction means within the self-latching deadbolt means for providing access to the finger pull member and for retracting the finger pull member, and finger pull attachment means proximate the finger pull member second end for providing a hinged connection to the self-retraction means. Further, the self-retraction means comprises a plunger member fitted within a receiving aperture formed in the self-latching deadbolt means, plunger biasing means coupled between the plunger member and the receiving aperture, a continuous channel formed in the

plunger member, and channel following means for locking the plunger in a retracted position and for retaining the plunger in an extended position.

Other objects, advantages, and novel features of the present invention will become apparent from the detailed description that follows, when considered in conjunction with the associated drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is a perspective view of the subject invention with the deadbolt in an extended position.

FIG. **2A** is a perspective view of the subject invention with the deadbolt in a retracted position and with the finger pull member retracted.

FIG. **2B** is a perspective view of the subject invention with the deadbolt in a retracted position and with the finger pull member extended.

FIG. **3** is a perspective view of the subject invention with the deadbolt in a partially extended position showing the partial pivoting of the lever.

FIG. **4** is an exploded view of the subject invention.

FIG. **5** is a cross-sectional view of the deadbolt assembly, minus the front mounting plate.

FIG. **6** is a cross sectional view of the deadbolt showing internal components of the self-retracting finger pull means.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring now to FIGS. **4–6**, there is shown a preferred embodiment of the combination deadbolt means and self-retracting finger pull means for a sliding door. Normally, the subject device is utilized in connection with a typical sliding door. The sliding door itself is mounted in a pocket frame or equivalent structure that fits within a wall. When a user desires to close the door, the door is slid out of the pocket. The subject invention provides the user with a means for accessing the door from within its packet frame and for locking the closed door (slid out of pocket) against a strike plate S mounted on the frame.

The subject invention is described in detail below in terms of incorporating a self-retracting finger pull in to a deadbolt assembly that includes a self-latching deadbolt, however, the subject invention generally comprises the self-retracting finger pull incorporated into any type of deadbolt means. The use of a particular self-latching deadbolt assembly is for illustrative purposes only and is useful for specifically describing one preferred embodiment of the subject invention, but does not limit the use of the self-retracting finger pull means to only deadbolt devices having a self-latching property.

Specifically, the subject apparatus comprises a housing construction from a first side plate **5**, a second side plate **10**, a back plate **15**, and a front mounting plate **20**. The four housing components (**5**, **10**, **15**, and **20**) cooperate to hold or encase the remaining elements of the subject apparatus. Other equivalent configurations are contemplated to be within the realm of this disclosure and include fabrication designs that incorporate combined or additional similar elements.

The housing fits within the sliding door D. The front mounting plate **20** is secured to the door D by standard means such as screws, bolts, and the like. A recessed handle H is utilized to permit the sliding door D to slide within its surrounding framework within the wall.

Within the housing and part of a deadbolt assembly is a self-latching deadbolt means that engages the strike plate S. As seen in FIGS. **1–5**, a deadbolt **25** is held within the housing. FIG. **1** illustrates the deadbolt **25** in an extended and strike plate S engaging position (the hook means **55** on the lever **40** projects away from the perspective presented in FIG. **1**, see below for more details on the hook means **55** and the lever **40**). FIGS. **2A** and **2B** depict the deadbolt **25** in a retracted and strike plate S nonengaging position with the finger pull means either retracted in FIG. **2A** or extended in FIG. **2B** (see below for details). FIG. **3** depicts the deadbolt **25** in an intermediate or partially extended position. Although other equivalent conformations are possible for the deadbolt **25**. FIGS. **4** and **5** show a typical structure for the deadbolt **25**. The deadbolt **25** has a first end that enters the strike plate S and a second end that slides within the housing. A longitudinal aperture **30** is formed in the deadbolt **25** and extends to proximate the deadbolt first end. A notch **35**, utilizing in sliding the deadbolt **25** between open and closed positions, is formed proximate the deadbolt second end. A deadbolt guide **32** fits within the housing to stabilize the sliding of the deadbolt **25** and securing the two halves of the housing **5** and **10** together.

A lever **40** has a first or head end that extends towards the strike plate S and a second or foot end that is directed away from the strike plate S. When assembled, the lever **40** is fitted within the longitudinal aperture **30** and held by pivoting means that permit pivoting such as a pivot screw or pin **45** mounted in a pivot screw or pin receiving aperture in the deadbolt **25**.

Hooking means are associated with the lever first end and are utilized for engaging or hooking within or to the strike plate S when the deadbolt **25** is extended. Preferably, the hooking means comprises a hook **55** formed proximate the lever first end.

A critical element of the present invention is the ability of the device to latch the hook **55** into the strike plate S even if the deadbolt **25** is extended when the sliding door D is closed and the deadbolt **25** inserted into the strike plate S. This hooking or latching ability is provided, in part, by a channel **60** shaped into the lever **40**. The channel **60** extends from proximate the lever second end towards the lever first end. Within the channel **60** is a biasing means that is typically a spring **65**. The spring **65** fits within the channel **60** and provides a moving pivot point within the channel **60** for the pivot screw or pin **45**. If the deadbolt **25** is partially or completely extended when the door is slid shut onto the strike plate S, the hook **55** and associated lever **40** merely compress the spring **65**. As the spring **65** compresses and shifts the pivot point, the lever **40** pivots into the longitudinal aperture **30**. Since the lever **40** and hook **55** are within the longitudinal aperture **30** the deadbolt **25** passes into the strike plate S and the hook **55** snaps out of the longitudinal aperture **30** and behind the strike plate S to secure or latch the sliding door closed.

Further aiding in the hooking and latching movement of the pivoting lever **40** is a guide means comprising a guide aperture **95** formed in an usually, but necessarily, through the lever **40** and a guide screw or pin **100** that extends through a guide screw or pin receiving aperture in the deadbolt **25** and into and usually, but not necessarily, through the guide aperture **95**. The guide screw or pin **100** may merely fit within a guide aperture **95** that partially penetrates the lever **40**. Specifically, as seen in FIG. **4**, the guide aperture is located within the lever **40** and extends from proximate the first or head end of the lever **40** and proximate or partially beside the channel **60**. The interaction between guide screw

or pin **100** and the internal shape of the guide aperture **95** dictates the limits of the path available to the lever **40** during the pivoting motion for latching and unlatching with the strike plate S. Although the preferred shape of the guide aperture **95** is generally triangular, other shapes for the guide aperture **95** are considered acceptable if the selected shape of the guide aperture **95** is such that when the deadbolt **25** is extended the lever **40** is directed out of the channel **30** and when the deadbolt **25** is retracted, the shape of the guide aperture **95** aids in the directed movement of the lever **40** into the channel **30**. The guide aperture **95** is no restricted to a tightly confined pathway for the guide screw or pin **100**, but is fairly spacious. The guide aperture **40** has sufficient space for variability in the exact pivotal position of the lever **40**, thus permitting an assisting or aiding action in the pivoting and not a strictly forced direction path. By placing limits of the pivoting motion of the lever **40**, the guide means helps to establish a reliable latching motion for the lever **40**.

Deadbolt extension means are provided to actuate the sliding of the deadbolt assembly between a nonengaging position and an engaging position for latching the hook **55** with the strike plate S. Preferably, although not exclusively the extension means comprises a cam-lever **70** that fits within the deadbolt notch **35**. The cam lever **70** is pivoted within the housing to slide the deadbolt **25** in and out by rotating with suitable means such as a standard handle attached to the coupling region **75**. As seen in FIG. **4** and **5**, the cam-lever **70** is configured to fit within the deadbolt notch **35** and upon appropriate rotation the cam-lever **70** forces the deadbolt **25** out of and into the housing. In FIGS. **1–3** the top of the cam-lever **70** is seen in three positions partially extending above the deadbolt notch **35**. To provide suitable resistance for the deadbolt **25** out and in sliding movement, resilient means, using a spring **80**, is supplied.

Generally, the self-retracting finger pull means is a mechanism that supplies a finger pull from within its integrated placement within the surrounding deadbolt **25**. The term "self-retracting" indicates that once the finger pull has been accessed by releasing it from within the surrounding deadbolt **25** it is reset to a retracted position either by manually pushing it back into the deadbolt **25** or by the more action of inserting the deadbolt **25** within the strike plate means S. When the end of the deadbolt **25** that contains the finger pull is forced against a back wall of the strike plate the internal mechanism of the finger pull means cycles or "self-retracts" into the retracted position and is held there until the user once again needs it for accessing the sliding door from within its surrounding frame.

Specifically, the self-retracting finger pull means for accessing the sliding door from within the surrounding framework comprises a finger pull member **110** having first and second ends. The finger pull member **110** is configured to fit flush in the end of the deadbolt **25** to provide a generally flat surface which is actually the end of the finger pull adapted deadbolt **25**. Included in the self-retracting finger pull means is a finger grasping means **115** that is located proximate the finger pull member **110** first end. Usually the finger grasping means **115** is hooked configuration (see FIG. **6**) that is easy to grasp with one or more fingers. Additionally, finger pull attachment means is adapted proximate the finger pull member **110** second end for providing a hinged connection **120** to the self-retraction means at an attachment point **125**. Generally, the finger pull attachment means is a traditional hinge formed in the finger pull member **110** second end via the hinged connection **120** to the attachment point **125**.

As best seen in FIG. **5**, self-retraction means within the deadbolt **25** means is supplied for providing access to the finger pull member **110** and for retracting the finger pull member **110** within the deadbolt **25** means when not needed. More specifically, the self-retraction means comprises several components including a reciprocable plunger member **130** fitted within a receiving aperture **135** formed in the deadbolt means. Further, included in the self-retraction means is a plunger biasing means coupled between the plunger member **130** and an anchoring point within the receiving aperture **135**. The biasing means is usually a spring **140** fitted between the second end of the plunger **130** and the end wall of the receiving aperture **135**.

Additionally, a continuous channel **145** is formed in the plunger member **130** that directs, in conjunction with a channel following means, a cyclic retracted to extended path of the plunger **130** within the receiving aperture **135** formed in the deadbolt **25**. The continuous channel **145** is inclined or sloped between its two outer end extremes and includes locking regions **150** and **155** (for use in conjunction with the channel following means described below) at each of the two outer end extremes.

preferably, the channel following means from locking cyclically or repeatedly the plunger **130** in a retracted position or in an extended position within the receiving aperture **135** comprises an elongated channel following member **160** having first and second ends. The channel following member **160** is usually a thin and somewhat flexible wire that is shaped into a suitable form. Included in the channel following member **160** is a channel following finger **165** formed at the first elongated channel following member end. Additionally, provided is an elongated channel following member biasing means associated with the second elongated channel following member end. The biasing means is generally a spring **170** that allows the channel following means to track within and follow the channel is **145**. Anchoring means **175** are included for securing the elongated channel following member biasing means **170** and the second elongated channel following member end **180** proximate the receiving aperture formed in the sliding deadbolt member **25**. Generally, the anchoring means **175** is a protrusion around which the biasing spring **170** fastens to hold the second elongated channel following member end **180**.

preferably, within the channel and located at approximately its two outer end extremes are locking regions **150** and **155** into which the channel following finger **165** fits to hold the plunger **130** in either its retracted or extended positions. When the plunger **130** is pushed in slightly (just enough to force the channel following finger **165** from within its current locking region **150** or **155** and into the sloped channel **145** between the two extremes **150** and **155**) the plunger **130** is freed to travel into its next position (i.e. the retracted position in which the finger **165** is in region **150** and then travels to the extended position in which the finger **165** is in region **155** (FIG. **5** shows the extended position) or the reverse in which the finger travels from the extended position to the retracted position).

Typically, a user employs the subject device by mounting in a suitable sliding door D. Specifically, with the self-latching deadbolt means embodiment, the door D is accessing via pushing in on the self-retracting finger pull which releases the finger pull member **110** for usage by the operator. With the self-latching deadbolt embodiment the operator does not need to be worried about whether or not the deadbolt **25** is extended when the door D is closed onto the strike plate S. In any withdrawn (FIGS. **2**A and **2**B), partially extended (FIG. **3**), or totally extended (FIG. **1**) position the deadbolt **25** will pass into the receiving strike

plate S opening. The lever **40** and associated hook **55** deflect into the deadbolt longitudinal aperture **30** via the variable pivot point within the lever channel **60**, as aided by the limits set by guide means. When the subject finger pull means is extended and the deadbolt **25** enters the strike plate **25**, the finger pull means retracts into a flush position and is internal to and integral with the deadbolt **25**. When the deadbolt **25** is withdrawn from the strike plate S and back into the housing the lever **40** cooperates with the housing structure, also aided by the guide means, to pivot the lever **40** back into the longitudinal aperture to release the strike plate S. Usually, a nub **85** on the lever **40** catches within a slot **90** in the housing and initiates pivoting of the lever **40** and associated book **55** into the longitudinal aperture **30**.

The invention has now been explained with reference to specific embodiments. Other embodiments will be suggested to those of ordinary skill in the appropriate art upon review of the present specification.

Although the foregoing invention has been described in some detail by way of illustration and example for purposes of clarity of understanding, it will be obvious that certain changes and modifications may be practiced within the scope of the appended claims.

What is claimed is:

1. A latch assembly for mounting to a sliding door and engaging with a strike plate means, comprising:

a) housing for fitting within the sliding door;

b) deadbolt means associated with said housing for engaging with the strike plate means; and

c) self-retracting finger pull means associated with said deadbolt means for accessing the sliding door from within a surrounding framework, wherein said selfretracting finger pull means comprises:

i) a finger pull member having first and second ends;

ii) finger grasping means proximate said finger pull member first end;

iii) self-retraction means within said deadbolt means for providing access to said finger pull member and for retracting said finger pull member, wherein said self-retraction means comprises:

a plunger member fitted within a receiving aperture formed in said deadbolt means;

plunger biasing means coupled between said plunger member and said receiving aperture;

a continuous channel formed in said plunger member; and

channel following means for locking said plunger in a retracted position and for retaining said plunger in an extended position, and

iv) finger pull attachment means proximate said finger pull member second end for providing a hinged connection to said self-retraction means.

2. A latch assembly for mounting to a sliding door and engaging with a strike plate means, comprising:

a) a housing for fitting within the sliding door;

b) self-latching deadbolt means associated with said housing for engaging with the strike plate means;

c) self-retracting finger pull means associated with said self-latching deadbolt means for accessing the sliding door from within a surrounding framework, wherein said self-retracting finger pull means comprises:

i) a finger pull member having first and second ends;

ii) finger grasping means proximate said finger pull member first end;

iii) self-retraction means within said self-latching deadbolt means for providing access to said finger pull member and for retracting said finger pull member, wherein said self-retraction means comprises:

a plunger member fitted within a receiving aperture formed in said self-latching deadbolt means;

plunger biasing means coupled between said plunger member and said receiving aperture;

a continuous channel formed in said plunger member; and

channel following means for locking said plunger in a retracted position and for retaining said plunger in an extended position; and

iv) finger pull attachment means proximate and finger pull member second end for providing a hinged connection to said self-retraction means; and

d) deadbolt extension means associated with said housing for sliding said self-latching deadbolt means between a nonengaging position and an engaging position with the strike plate means.

3. A latch assembly for mounting to a sliding door and engaging with a strike plate means, comprising:

a) a housing for fitting within the sliding door;

b) a deadbolt assembly comprising:

i) a sliding deadbolt member having first and second ends;

ii) a lever having first and second ends;

iii) hooking means associated with said lever first end for engaging the strike plate means;

iv) a channel formed within said lever extending from proximate said lever second end towards said lever first end;

v) pivoting means for connecting said lever by said channel to said deadlock member; and

vi) biasing means for providing a variable point of pivoting within said channel whereby said pivoting varies from proximate said lever second end toward said lever first end;

c) self-retracting finger pull means associated with said self-latching deadbolt means for accessing the sliding door from within a surrounding framework; wherein said self-retracting finger pull means comprises:

i) a finger pull member having first and second ends;

ii) finger grasping means proximate said finger pull member first end;

iii) self-retraction means within said self-latching deadbolt means for providing access to said finger pull member and for retracting said finger pull member; and

iv) finger pull attaching means proximate said finger pull member second end for providing a hinged connection to said self-retraction means; and

d) deadbolt extension means for sliding and deadbolt assembly between a nonengaging position and an engaging position with the strike plate means.

4. A latch assembly according to claim **3**, wherein said self-retraction means comprises:

a) a plunger member fitted within a receiving aperture formed in said self-latching deadbolt means;

b) plunger biasing means coupled between said plunger member and said receiving aperture;

c) a continuous channel formed in said plunger member; and

d) channel following means for locking said plunger in a retracted position and for retaining said plunger in an extended position.

5. A self-latching deadbolt assembly for mounting in a sliding door and engaging with a strike plate means, comprising:

a) a sliding deadbolt member having first and second ends;

b) a lever having first and second ends;

c) hooking means associated with said lever first end for engaging the strike plate means, wherein said hooking means comprises a hook formed in said lever proximate said lever first end;

d) a channel formed within said lever extending from proximate said lever second end towards said lever first end;

e) pivoting means for connecting said lever by said channel to said deadbolt member;

f) biasing means for providing a variable point of pivoting within said channel whereby said pivoting varies from proximate said lever second end toward said lever first end and wherein said biasing means comprises a spring fitted within said channel the cooperates with said pivoting means;

g) guide means for aiding in directing the motion of said lever; and

h) self-retracting finger pull means for accessing said sliding door from within a surrounding framework, wherein said self-retracting finger pull means comprises:

i) a finger pull member having first and second ends;

ii) finger grasping means proximate said finger pull member first end;

iii) self-retraction means within said self-latching deadbolt means for providing access to said finger pull member and for retracting said finger pull member; and

iv) finger pull attachment means proximate said finger pull member second end for providing a hinged connection to said self-retraction means.

6. A self-latching deadbolt assembly according to claim **5**, wherein said self-retracting means comprises:

a) a plunger member fitted within a receiving aperture formed in said self-latching deadbolt means;

b) plunger biasing means coupled between said plunger member and said receiving aperture;

c) a continuous channel formed in said plunger member; and

d) channel following means for locking said in a retracted position and for retaining said plunger in an extended position.

7. A latch assembly for mounting to a sliding door and engaging with a strike plate means, comprising:

a) a housing for fitting within the sliding door;

b) self-latching deadbolt means associated with said housing for engaging with the strike plate means comprising a deadbolt assembly comprising:

i) a sliding deadbolt member having first and second ends;

ii) a lever having first and second ends;

iii) hooking means associated with said lever first end for engaging the strike plate means;

iv) a channel formed within said lever extending from proximate said lever second end towards said lever first end;

v) pivoting means for connecting said lever by said channel to said deadbolt member;

vi) biasing means for providing a variable point of pivoting within said channel whereby said pivoting varies from proximate said lever second end toward said lever first end; and

vii) guide means for aiding in directing the motion of said lever;

c) deadbolt extension means associated with said housing for sliding said self-latching deadbolt means between a nonengaging position and an engaging position with the strike plate means; and

d) self-retracting finger pull means for accessing said sliding door, wherein said self-retracting finger pull means comprises:

i) a finger pull member having first and second ends;

ii) finger grasping means proximate said finger pull member first end;

iii) self-retraction means within said sliding deadbolt member for providing access to said finger pull member and for retracting said finger pull member, and

iv) finger pull attachment means proximate said finger pull member second end for providing a hinged connection to said self-retracting means.

8. A self-latching deadbolt assembly according to claim **7**, wherein said self-retraction means comprises:

a) a plunger member fitted within a receiving aperture formed in said sliding deadbolt member;

b) plunger biasing means coupled between said plunger member and said receiving aperture;

c) a continuous channel formed in said plunger member; and

d) a channel following means for locking said plunger in a retracted position and for retaining said plunger in an extended position.

9. A latch assembly according to claim **8**, wherein said channel following means comprises:

a) an elongated channel following member having first and second ends;

b) a channel following finger formed at said first elongated channel following member end;

c) elongated channel following member biasing means associated with said second elongated channel following member end; and

d) anchoring means for securing said elongated channel following member biasing means and said second elongated channel following member end proximate said receiving aperture formed in said sliding deadblock member.

10. A latch assembly for mounting to a sliding door and engaging with a strike-late means, comprising:

a) a housing for fitting within the sliding door;

b) self-latching deadbolt means associated with said housing for engaging with the strike plate means comprising a deadbolt assembly comprising:

i) a sliding deadbolt member having first and second ends;

ii) a lever having first and second ends;

iii) hooking means associated with said lever first end for engaging the strike plate means, wherein said hooking means comprises a hook formed in said lever proximate said lever first end;

iv) a channel formed within said lever extending from proximate said lever second end towards said lever first end;

v) pivoting means for connecting said lever by said channel to said deadbolt member;

vi) biasing means for providing a variable point of pivoting within said channel whereby said pivoting varies from proximate said lever second end toward

said lever first end and wherein said biasing means comprises a spring fitted within said channel that cooperates with said pivoting means; and

vii) guide means for aiding in directing the motion of said lever, wherein said guide means comprises:

a guide aperture formed in said lever;

a guide pin that fits within said guide aperture;

a guide pin receiving aperture formed in said deadbolt member which secures said guide pin within said guide aperture;

c) deadbolt extension means associated with said housing for sliding said self-latching deadbolt means between a nonengaging position and an engaging position with the strike plate means; and

d) self-retracting finger pull means for accessing said sliding door from within a surrounding framework, wherein said self-retracting finger pull means comprises:

i) a finger pull member having first and second ends;

ii) finger grasping means proximate said finger pull member first end;

iii) self-retraction means within said sliding deadbolt member for providing access to said finger pull member and for retracting said finger pull member; and

iv) finger pull attachment means proximate said finger pull member second end for providing a hinged connection to said self-retraction means.

11. A self-latching deadbolt assembly according to claim **10**, wherein said self-retraction means comprises:

a) a plunger member fitted within a received aperture formed in said sliding deadbolt member;

b) plunger biasing means coupled between said plunger member and said receiving aperture;

c) a continuous channel formed in said plunger member; and

d) channel following means for locking said plunger in a retracted position and for retaining said plunger in an extended position.

12. A latch assembly according to claim **11**, wherein said channel following means comprises:

a) an elongated channel following member having first and second ends;

b) a channel following finger formed at said first elongated channel following member end;

c) elongated channel following member biasing means associated with said second elongated channel following member end; and

d) anchoring means for securing said elongated channel following member biasing means and said second elongated channel following member end proximate said receiving aperture formed in said sliding deadbolt member.

13. A latch assembly comprising:

a latch housing;

a deadbolt slideably positionable in the latch housing; and

a pull, coupled to a distal end of the deadbolt and positionable relative to the deadbolt, including a finger pull member and a self retraction mechanism,

wherein the self-retraction mechanism includes:

a plunger member coupled to the finger pull member and fitted within a receiving aperture formed in the deadbolt;

a biasing member coupled between the plunger member and the receiving aperture;

a continuous channel formed in the plunger member; and

a channel follower coupled to the plunger member for locking the plunger member in a retracted position and for retaining the plunger member in an extended position.

14. The latch assembly of claim 13 wherein the pull includes a finger pull member pivotally coupled to the distal end of the deadbolt and rotatably positionable between a stowed position and a use position.

15. The latch assembly of claim 14, wherein the finger pull member includes a tab extending therefrom which is received within a slot formed in the distal end of the deadbolt when the finger pull member is in the stowed position.

16. The latch assembly of claim 13 wherein the finger pull member is coupled to the plunger member for reciprocating movement relative to the deadbolt.

17. The latch assembly of claim 16 wherein the finger pull member is pivotally coupled to a distal end of the plunger member and rotatably positionable between a stowed position and a use position.

18. The latch assembly of claim 17 wherein the finger pull member includes a tab extending therefrom which is received within a slot formed in the distal end of the deadbolt when the finger pull member is in the stowed position and the plunger member is in the retracted position.

19. A latch assembly comprising:

a latch housing;

a deadbolt slideably positionable in the latch housing; and

a pull, coupled to a distal end of the deadbolt and positionable relative to the deadbolt, including a finger pull member and a self retraction mechanism,

wherein the self-retraction mechanism includes:

a plunger member coupled to the finger pull member and fitted within a receiving aperture formed in the deadbolt; and

a channel follower coupled to the plunger member for locking the plunger member in a retracted position and for retaining the plunger member in an extended position.

20. The latch assembly of claim 19, wherein the self-retraction mechanism further comprises a biasing member, coupled between the plunger member and the receiving aperture, for biasing the plunger member towards the extended position.

21. The latch assembly of claim 19, wherein the self-retraction mechanism further comprises a continuous channel formed in the plunger member.

22. The latch assembly of claim 19, wherein the finger pull member is coupled to the plunger member for reciprocating movement relative to the deadbolt.

23. The latch assembly of claim 22, wherein the finger pull member is pivotally coupled to a distal end of the plunger member and rotatably positionable between a stowed position and a use position.

24. The latch assembly of claim 23 wherein the finger pull member includes a tab extending therefrom which is received within a slot formed in the distal end of the deadbolt when the finger pull member is in the stowed position and the plunger member is in the retracted position.

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