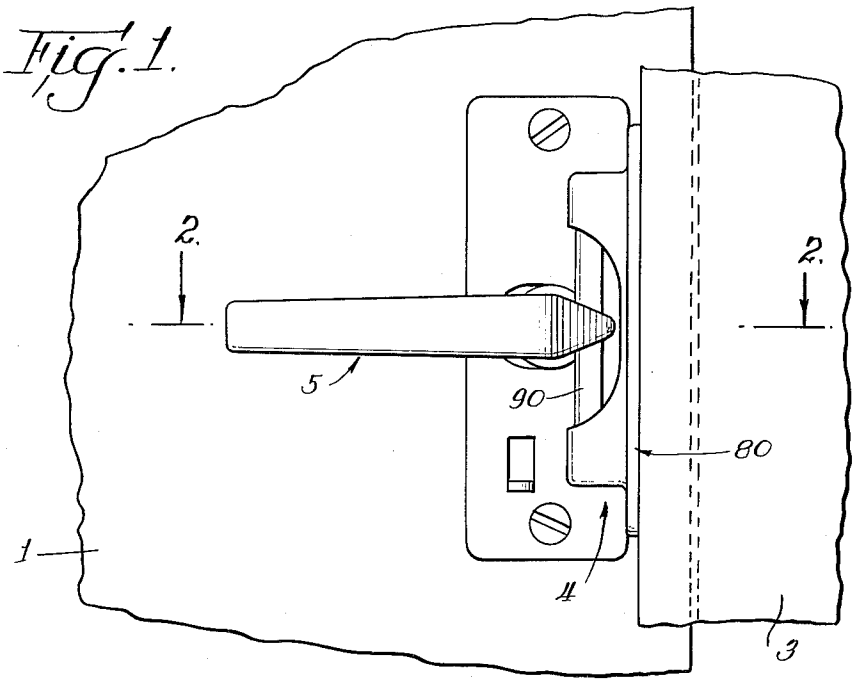
Sept. 7, 1965 C. A. BEHRENS 3,204,996

DOOR LATCH MECHANISM

Original Filed Dec. 7, 1961 2 Sheets-Sheet 1

Fig. 1.



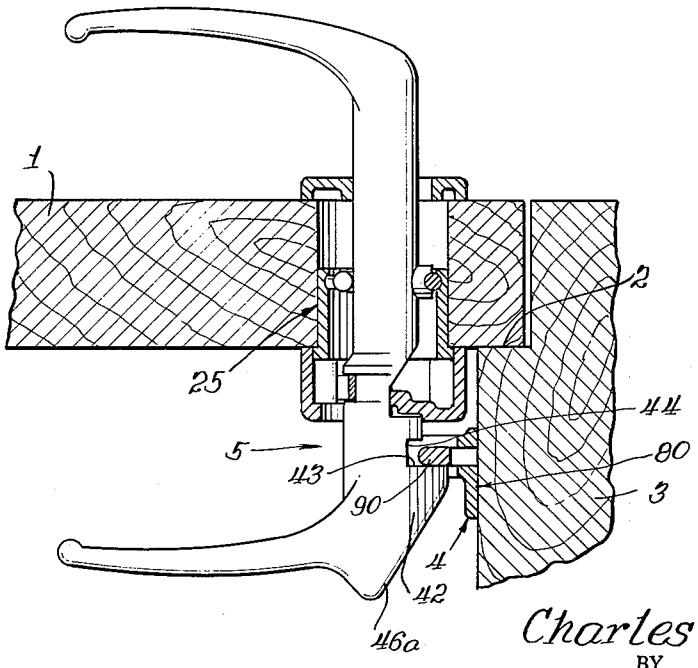


Fig. 2.

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Fig. 3

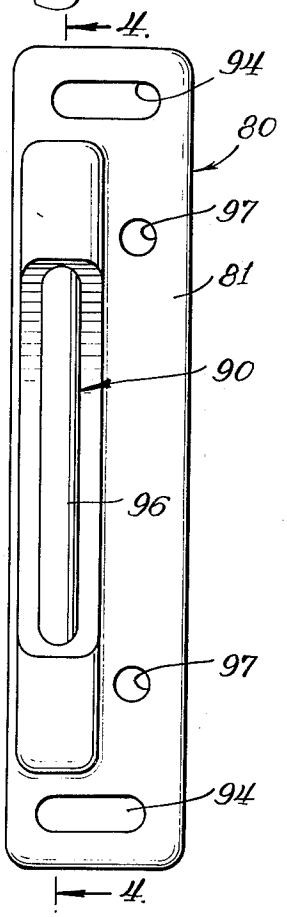


Fig. 4.

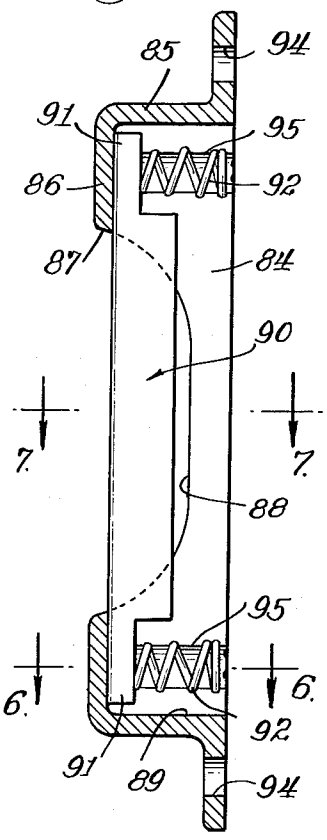


Fig. 5.

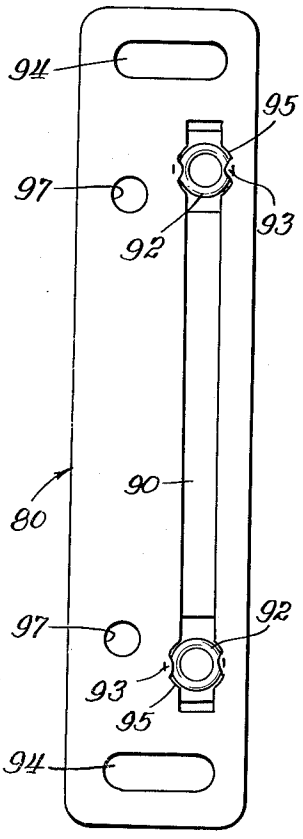


Fig. 6.

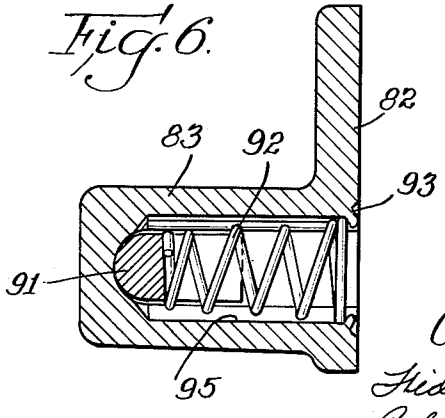
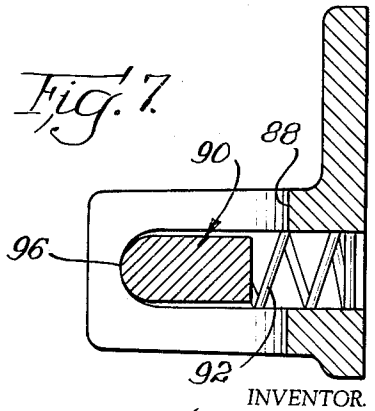


Fig. 7.



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United States Patent Office 3,204,996 Patented Sept. 7, 1965

3,204,996

DOOR LATCH MECHANISM

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Original application Dec. 7, 1961, Ser. No. 157,716. Divided and this application Feb. 20, 1963, Ser. No. 259,878

4 Claims. (Cl. 292—341.15)

This application is a division of my co-pending application Serial No. 157,716, filed December 7, 1961 and now abandoned.

This invention relates to a door latch mechanism and has to do more particularly with a keeper or strike forming a portion of a door latch mechanism.

Strikes for door latch mechanisms are known wherein a strike bar is yieldably urged into operative position by a spring or springs which permit the bar to be depressed by the latch when the door is moved to closed position to thereby permit the latching dog portion of the latch bolt to ride over the bar. Customarily, the bar is formed as a rod with a circular cross-section and is relatively small in diameter in order that the latch mechanism may not be unduly large and cumbersome. Such a rod is usually rotatable in the casing in which it is carried. Consequently, a strike employing such a rod is subject to the disadvantage that the latched door can be released by shaking the door until the bar rolls out from behind the latching dog of the bolt.

Prior strike bars of circular cross-section also are subject to the disadvantage that they may be bent or broken in use unless made unduly large in diameter.

In many prior strikes, the strike bar is urged into operative position by a pair of coil springs bearing against opposite ends of the strike bar. When the bar is of conventional form, certain difficulties arise in connection with suitably positioning the springs relatively to the ends of the bar and in maintaining the springs in the desired positions.

An object of the present invention is to provide a new and improved door latch mechanism.

Another object is to provide a new and improved strike for a door latch mechanism.

Another object is to provide a strike for a door latch mechanism of such construction that the latch cannot be disengaged by shaking the door.

Another object is to provide a strike for a door latch mechanism which has increased strength over conventional strikes without any increase in overall dimensions in the direction of the length of the latch bolt.

Another object is to provide a strike for a door latch of the type wherein the strike bar is yieldably supported by springs at each end of the bar and wherein the construction is such that the springs are retained in proper position without being attached to the strike bar.

Another object is to provide a strike for a door latch of the type wherein the strike bar is yieldably supported by springs at each end of the bar and wherein the construction is such that no backing plate is required for the springs.

Still another object is to provide a novel strike for a door latch mechanism which strike is of very simple construction and can be easily and inexpensively made and assembled.

Other objects and advantages will appear from the following description taken in connection with the appended drawings, wherein:

FIGURE 1 is an elevational view of the latch mechanism from the inside of the door;

FIG. 2 is a horizontal sectional view taken along line 2—2 of FIG. 1;

FIG. 3 is an enlarged front elevational view of the strike shown in FIGS. 1 and 2;

FIG. 4 is a vertical sectional view taken along line 4—4 of FIG. 3;

FIG. 5 is a new elevational view of the strike;

FIG. 6 is an enlarged, transverse, sectional view taken along line 6—6 of FIG. 4; and

FIG. 7 is an enlarged transverse sectional view taken along line 7—7 of FIG. 4.

Referring now particularly to FIGS. 1 and 2, the door 1 is suitably mounted for opening and closing movement and preferably is hinged at the edge opposite the edge carrying the latch. The face edge of the door is adapted to abut against a shoulder 2 formed in the door jamb or frame 3. A strike 4, hereinafter described in detail, is attached to the door jamb 3 as by screws (not shown) and has a strike bar 90 in position to be engaged by a latching member or bolt 5 carried by the door.

The latch bolt 5 and its mounting are fully disclosed in my co-pending application S.N. 157,716 and since the details thereof form no part of the present invention, it is not disclosed in detail herein. However, it will be understood that the latch bolt 5 is mounted in a bearing support member 25 for both rocking and rotary motion whereby it can be engaged with the disengaged from the strike bar 90.

The latch bolt 5 is formed with a latching dog 42 having a latching surface 43 and forwardly thereof is formed with a notch 44 to insure that the strike bar 90 will seat behind the surface 43. The dog 42 is provided with an inclined cam surface 46*a* for camming down the strike bar 90 as the dog moves into latching position past and beyond the strike bar 90.

The strike is shown in detail in FIGS. 3 to 7 to which reference is now made. It comprises a casing 80, a strike bar 90 and a pair of springs 92. The casing 80 includes a base or flange portion 81 having preferably a flat bottom surface 82 adapted to lie against the door frame. The casing 80 also includes a socket portion 83 integral with and upstanding from the base portion 82 and formed with side walls 84, end walls 85 and a top wall 86. The top wall 86 is provided with an elongate opening 87 and the side walls 84 are formed with deep notches 88 extending downwardly from the opening 87. Thus, the construction in effect defines a recess with two sockets 89 at the opposite ends of the casing 80 having substantially parallel inner side walls. The remaining portions of the side walls also are generally parallel.

The strike bar 90 is of elongate form and disposed floatingly in the recess within the casing member 80 and is of sufficient length so that its end portions extend into the sockets 89 to such an extent that the strike bar 90 cannot be dislodged from the casing member 80 after the device has been assembled as hereinafter described and is constrained to slide in the casing member.

The strike bar 90 is of a generally rectangular cross-sectional form wherein the transverse dimension in a direction from top to bottom of the recess is substantially greater than the other transverse dimension, thereby providing substantially stronger bar than would be provided if it were circular or other form having equal transverse dimensions. It will be noted in this connection that the body portion of the bar having such larger transverse dimension extends into the two end sockets. The upper edge of the strike bar 90 is convexly shaped to provide a camming surface 96 adapted to be engaged by the cam surface 46*a* of the latching dog 42 on the latching member 5. The side surfaces of the bar 90 are flat and generally parallel whereby the surface which is positioned to be engaged by the latching surface 43 of the dog 42 presents a substantial area for such engagement.

The end portions of the bar **90** are "notched" and of substantially reduced dimension in the direction of the depth of the sockets and a pair of coil springs **92** are provided which abut at their upper ends against the flat faces of the end portions **91**. At their inner ends, the springs are retained by spinning or staking the casing member as at **93** which spinning or staking also provides a back stop against which the springs may be compressed when the strike bar is depressed. The opposing walls of each of the sockets **89** are provided with grooves **95** which form enlargements of the sockets to accommodate the springs **92** respectively.

A pair of elongate slots **94** are provided at the ends of base **81** for temporarily securing the strike to a door jamb or frame to permit adjustment of its position, and a pair of screw holes **97** are provided for permitting screws to be passed through to secure the strike in its final, adjusted position.

The strike operates in a manner generally similar to other strikes having depressible strike bars. The strike bar **90** is normally urged into its upper position by the springs **92**, in which position the central portion of the bar **90** is exposed and is in position to be engaged by the latching dog **42**. When the door is open, the latching dog is positioned away from the strike bar **90** and as the door is closed the cam surface **46***a* of the dog **42** engages the curved camming surface **96** of the strike bar **90** and urges the strike bar downwardly out of its normal position by a camming action, so that the latching dog **42** can ride over and past the strike bar **90**. When the dog has cleared the strike bar **90**, the latter is urged into its latching position (FIG. 2) by the springs **92**.

In its movement between its latching position and its depressed position, the strike bar **90** is guided by the generally parallel side walls of the recess which are sufficiently close together to prevent material tilting or rocking of the strike bar about its longitudinal axis. Owing to the shape of the strike bar, there is a substantial side face area adapted to engage the side face of the recess to provide a large bearing area. Moreover, owing to the shape of the strike bar, it has a substantial cross section providing substantial stiffness and rigidity.

The reduced or notched ends of the strike bar permit the strike bar to be depressed to a position wherein its inner face is in the plane of the bottom face of the base **81**. Thus the springs **82** can be wholly disposed within the casing **80** and they are not damaged in any way by the depression of the strike bar. In other words, the shape of the ends **91** of the strike bar is such that recesses are provided for receiving the springs even when the strike bar is in its fully depressed position.

It will be seen that the strike bar is provided with a flat face positioned to be engaged by the face **43** of the dog **42** when latching member is in its latching position against the strike bar. This feature insures that the latch cannot be released from the latch bar by shaking the door to thereby release the door. Thus the shape of the strike bar represents a substantial improvement over strike bars of circular shape wherein the door can often be opened by shaking the door to cause the round strike bar to roll out from engagement with the latching face of the latching member.

I claim:

1. A door latch strike comprising a hollow casing having a base flange, end walls and generally parallel side walls upstanding from said base flange and a top wall joining said side walls at their tops, said end, side and top walls defining a recess open at its bottom, said top wall being formed with an opening terminating short of its ends and said side walls being notched adjacent said top wall opening, a strike bar floatingly slidable in said recess between a position against said top wall wherein at least a portion of said bar is exposed and a position displaced therefrom in the direction of said base flange, and means yieldably urging said bar into position against said top wall, said strike bar having a corresponding dimension substantially equal to the width of said recess and a transverse dimension which is substantially greater in the direction of movement of the strike bar than the direction transversely thereto and a convexly upper surface at least in that portion which is exposed.

2. A door latch strike adapted for engagement by a door latch dog having a flat latching surface and a camming surface inclined thereto, said strike comprising a hollow casing having a base flange, end walls and generally parallel side walls upstanding from said base flange and a top wall joining said side walls at their tops, said end, side and top walls defining a recess open at its bottom, said top wall being formed with an opening terminating short of its ends and said side wall being notched adjacent said top wall opening, a strike bar floatingly slidable in said recess between a position against said top wall wherein at least a portion of said bar is exposed and a position displaced therefrom in a direction toward said base flange, and means yieldably urging said bar into position against said top wall, said bar having a flat side wall surface adapted for engagement with said flat door latch dog surface, said bar having a corresponding dimension substantially equal to the width of said recess and a convexly curved upper surface adapted for engagement with said camming surface on said door latch dog.

3. A door latch strike as set forth in claim **1** wherein said means yieldably urging said bar comprises a pair of coil springs disposed in said recess and each engaging an end portion of said bar respectively, means retaining said springs in said recess, and said bar being recessed at its ends to receive said springs, whereby when the bottom of said bar is flush with the bottom of said casing, said springs are disposed wholly within such recesses in said bar.

4. A door latch strike as set forth in claim **2** wherein said means yieldably urging said bar comprises a pair of coil springs freely abutting the lower surfaces of the ends of said strike bar respectively and means entirely within said recess and projecting inwardly from the rim of said recess adjacent the bottom thereof and engaging the bottoms of said springs for retaining said springs in said recess.

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M. HENSON WOOD, JR., *Examiner.*

UNITED STATES PATENT OFFICE

CERTIFICATE OF CORRECTION

Patent No. 3,204,996 September 7, 1965

Charles A. Behrens

It is hereby certified that error appears in the above numbered patent requiring correction and that the said Letters Patent should read as corrected below.

Column 2, line 25, for "with the" read -- with and --; column 4, line 14, for "convexly upper" read -- convexly curved upper --.

Signed and sealed this 26th day of July 1966.

(SEAL)
Attest:

ERNEST W. SWIDER
Attesting Officer

EDWARD J. BRENNER
Commissioner of Patents