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2,403,182

ADJUSTABLE STRIKE PLATE FOR DOOR LOCKS

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Fig. 1

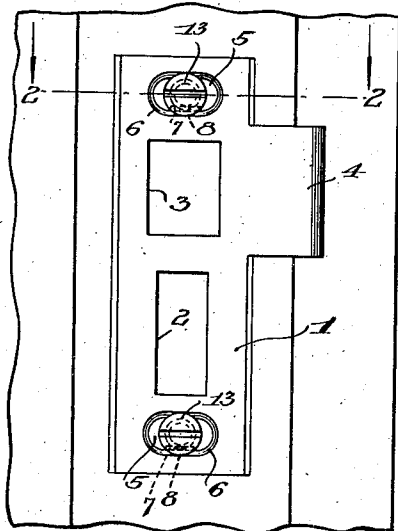


Fig. 4

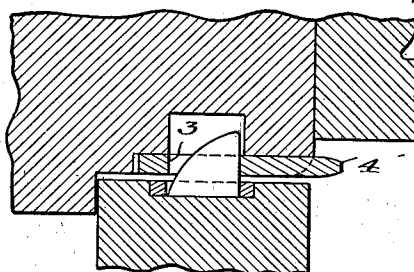


Fig. 5

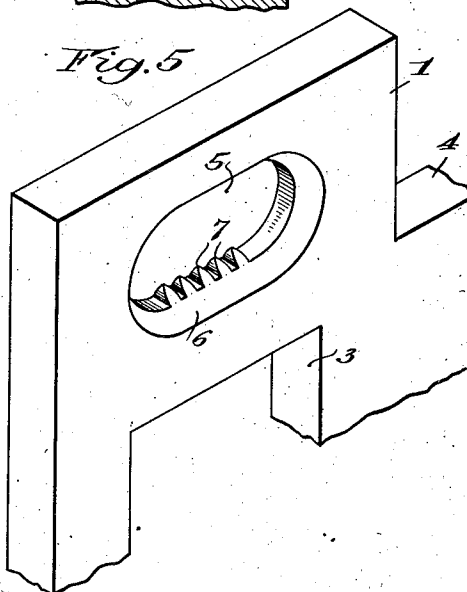


Fig. 2

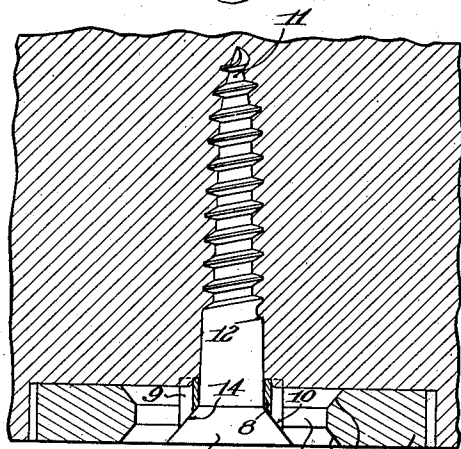


Fig. 6

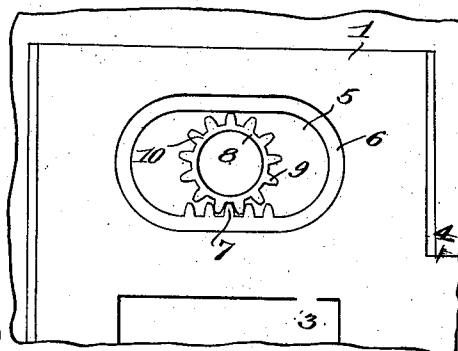


Fig. 3

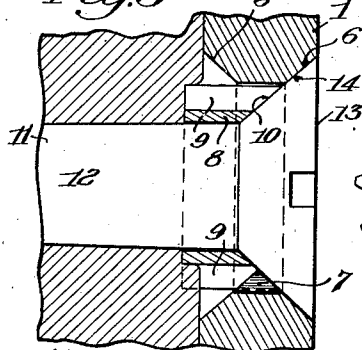
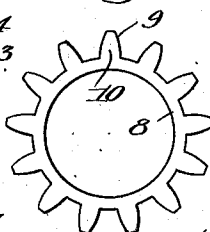


Fig. 7



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ADJUSTABLE STRIKE PLATE FOR DOOR LOCKS

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5 Claims. (Cl. 292—340)

1

This invention relates to an adjustable strike plate for locks and latches, and has for its purpose to afford a structure that enables quick adjustment of a strike plate and insures holding the plate securely in adjusted position.

Lock strike plates frequently require adjusting and repositioning on a doorframe, due to shrinking or sagging of the door, and one object of the invention is to provide a simple and practical structure by which an extremely fine adjustment of the strike plate to any extent can be easily had, and the plate held firmly after adjustment without possibility of its position being shifted.

Another purpose of the invention is to provide a strike plate that costs practically no more to manufacture and install than the conventional non-adjustable strike plate and which can be successfully applied to locks already installed.

A further object of the invention is to afford a strike plate that can be reversibly positioned on a doorframe, one that is held in place by conventional screws, and in which the same screw openings are used for holding the plate in any position of adjustment.

Still an additional purpose of the invention is to afford an adjustable strike plate that requires no supplemental plate and is held in place by a positive interlocking retaining device which is adjustable in relation to the strike plate and is held against the doorframe in such a way as to prevent any slight movement after adjustment.

A further object of the invention is to afford a construction that makes it possible to hold both the strike plate and the interlocking retaining device in place by common fastening screws associated with both said elements.

Another purpose is to provide a strike plate adjustably retained by a pinion gear that is engaged with a toothed rack on the strike plate and is held interlocked with the plate and doorframe by a fastening screw extending through the plate and gear.

To these and other ends, the invention consists in the construction and arrangement of parts that will appear clearly from the following description when read in conjunction with the accompanying drawing, the novel features being pointed out in the claims following the specification.

In the drawing:

Fig. 1 is a view in elevation showing a preferred embodiment of the invention in actual size secured in place on a doorframe;

Fig. 2 is a horizontal sectional view taken on

2

the line 2—2 of Fig. 1 looking downwardly and with the parts shown three times actual size:

Fig. 3 is a vertical sectional view taken centrally through one of the fastening screws and showing the parts about six times actual size;

Fig. 4 is a horizontal sectional view taken centrally through the latch opening of the strike plate as shown in Fig. 1;

Fig. 5 is a perspective view, partially broken away, showing the upper portion of the strike plate about three times actual size;

Fig. 6 is a front elevation of the upper portion of the strike plate in the same proportion as Fig. 5, showing the interlocking retaining device, with the fastening screw removed, and

Fig. 7 is a view in elevation of the interlocking retaining device about six times actual size.

Various types of adjustable strike plates have been proposed but have proved impractical either because of excessive cost due to a complicated structure of too many parts, difficulty in effecting the desired adjustment, or tendency of the strike plate to loosen and move after adjustment, and all these objections are overcome in the present structure which costs little or practically no more to manufacture than the conventional strike plate, and can be adjusted in a few seconds so that it will hold rigidly and permanently in such adjusted position, all of which can be accomplished by conventional fastening screws and retaining devices that are held by the fastening screws in interlocked relation to the strike plate and to the doorframe.

The invention includes a collar that constitutes a retaining device rotatably arranged on each fastening screw to permit relative turning, and in the form of a spur pinion engaging a horizontally disposed toothed rack on the strike plate so that the latter can be moved horizontally in relation to the fastening screws and doorframe through a distance of one tooth of the pinion, or through a distance of only a few ten-thousandths of an inch or any fraction of one pinion tooth, the pinion turning on the fastening screw to permit such horizontal adjustment of the strike plate. When the strike plate is in the desired position, the fastening screw is turned down tightly and forces the interlocking retaining device or pinion to bite into the wood of the doorframe sufficiently to overcome any tendency of the pinion to turn while the fastening screw is in place, and thus the strike plate is securely held in the desired adjusted position.

According to a preferred embodiment, as shown in the drawing, in which like reference

numerals refer to the same parts throughout the several views, the strike plate is designated generally at 1 and includes a lock opening 2, a latch opening 3, and a strike portion 4, all of which is in accordance with the conventional non-adjustable strike plate.

At the top and bottom, the strike plate is provided with elongated horizontally extending slots 5 which need only be of sufficient length to permit a slight adjustment of the strike plate as there is seldom need for adjusting these plates more than a few thousandths of an inch. Each slot 5 extends entirely through the strike plate and is provided on both sides of the plate with surrounding bevelled edges 6, while one side of each slot 5 is provided with a toothed rack 7, as shown in Fig. 5.

The bevelled edges 6 of the slot 5 are symmetrically arranged on opposite sides of the strike plate and the toothed rack 7 is centrally disposed between opposite sides of the strike plate, permitting the strike plate to be positioned with either side against a doorframe and with the strike portion 4 extending in either direction from a doorframe, while the bevelled edges 6 are engaged by the bevelled head of the fastening screw, as will appear presently.

The strike plate is held rigidly in adjusted position by a retaining device or collar in the form of a pinion designated at 8 and including teeth 9 that engage the toothed rack 7 along one side of the slot 5. The pinion 8 has a bevelled seat at 10 on its inner surface to receive the bevelled head of the fastening screw, and the teeth on pinion 8 extend entirely across the periphery of the latter so that when forced against the doorframe, the pinion teeth bite slightly into the wood of the doorframe and form an interlocking bond therewith to prevent movement of the pinion 8 when the fastening screw is in place.

The fastening screw, as designated at 11, is of conventional form including the unthreaded upper body portion 12 that turns within the collar or pinion 8, while the head 13 of the screw includes a bevelled under surface 14 that contacts the adjacent bevelled surfaces 6 of the slot 5 and also the correspondingly bevelled seat 10 of the pinion 8 when the fastening screw is tightly in place.

The pinion 8 slides loosely on the body 12 of the fastening screw, and the strike plate is held in position by turning the screw 11 into the doorframe, the pinion 8 being engaged with the toothed rack 7, until the outer face of the head of the fastening screw is flush with the side of the strike plate, as shown in Fig. 2, and when the parts are in this position, the pinion teeth are forced slightly into the wood of the doorframe, as shown in Figs. 2 and 3, and the strike plate is engaged against the doorframe.

Lateral movement of the strike plate is prevented because the pinion 8 is secured against turning movement relatively to the fastening screw by having the inner ends of its teeth biting into the doorframe, and the strike plate is interlocked by its toothed rack 7 with the pinion 8. In order to effect lateral adjustment of the strike plate, the fastening screws 11 are loosened sufficiently to free the interlocking retaining pinions 8 from the doorframe so that the pinions 8 are free to turn on the fastening screws. The strike plate can then be moved laterally the required extent during which adjustment of the strike plate the interlocking retaining devices or pinions 8 turn on the fastening screw 12. The

strike plate may be adjusted any amount, as little as a few ten-thousandths of an inch if desired, whereupon by turning the fastening screws to move them again into tight engagement with the doorframe, the pinions 8 are again forced tightly into rigid locked relation with the doorframe and the strike plate is held firmly against any slight play.

With this construction, the strike plate is reversible and either side may be fastened to a door frame without changing the relation or function of the parts. Such a strike plate may be substituted for a conventional strike plate without the necessity of providing new openings for the attaching screws since the same openings serve for holding the plate in position, irrespective of its adjustment. The strike plate can be stamped and manufactured at a cost no greater than that of the conventional non-adjustable strike plate and the interlocking retaining pinions can be formed from standard stock material and add nothing appreciable to the manufacturing cost. The strike plate can be applied to a doorframe and secured in position as easily and quickly as a conventional plate, while permitting quick adjustment from time to time as variations in the door or frame may require.

While the invention has been described with reference to the particular construction shown, it is not confined to the details herein disclosed, and this application is intended to cover such modifications or departures as may come within the purposes of the invention or the scope of the following claims.

We claim:

1. The combination with an adjustable strike plate having a slot extending therethrough, of a toothed rack along one side of said slot, a retaining device comprising a pinion located inwardly of the outer face of the strike plate and positioned in said slot in engagement with said toothed rack, and fastening means extending through said pinion into a supporting frame and engaging the strike plate and pinion and acting to hold the pinion in interlocked relation to the supporting frame and strike plate and to retain the strike plate against the supporting frame.

2. The combination with an adjustable strike plate having a slot extending therethrough, of a toothed rack along one side of said slot, a retaining device comprising a pinion located inwardly of the outer face of the strike plate and having teeth extending entirely across the periphery thereof and engageable with said toothed rack, and fastening means extending through said pinion into a supporting frame and engaging said strike plate and pinion and acting to hold the pinion in interlocked relation to the supporting frame and strike plate with the strike plate against the supporting frame.

3. The combination with a strike plate having a slot extending therethrough and surrounded by a bevelled edge, of a toothed rack along one side of the slot adjacent to said bevelled edge, a retaining device comprising a pinion engageable with said toothed rack, the teeth on the pinion extending entirely across the periphery thereof and slightly beyond the inner face of the strike plate when in fastened position, the pinion having a bevelled seat at its outer edge forming a continuation when in fastened position with said bevelled edge around the slot, and a fastening screw extending through said slot and pinion and having a head with a bevelled under surface engaging the bevelled edge of the slot and the

5

bevelled seat of the pinion, said fastening screw acting to hold the pinion in interlocked relation with a supporting frame and to hold the strike plate against the supporting frame interlocked with the pinion gear.

4. The combination with a strike plate having a slot extending therethrough and surrounded by a bevelled edge, of a toothed rack along one side of the slot adjacent to said bevelled edge, a retaining device comprising a pinion engageable with said toothed rack, the pinion having a bevelled seat at its outer edge forming a continuation when in fastened position with said bevelled edge around the slot, and a fastening screw extending through said pinion and having a head with a bevelled undersurface engaging the bevelled edge of the slot and the bevelled seat of the pinion, said fastening screw acting to hold the pinion against a supporting frame and to hold the

6

strike plate against the supporting frame interlocked with the pinion gear.

5. The combination with a strike plate having a slot extending therethrough, of a toothed rack along one edge of the slot, a retaining device comprising a pinion engageable with said toothed rack and located inwardly of the outer face of the strike plate, the teeth on the pinion extending slightly beyond the inner face of the strike plate when in fastened position, and a fastening screw extending through said pinion and having a head engaging the strike plate and pinion, said fastening screw acting to hold the pinion in interlocked relation with a supporting frame and to hold the strike plate against the supporting frame interlocked with the pinion gear.

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