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LOCK MOUNTING MEANS FOR NARROW STILE DOOR FRAME

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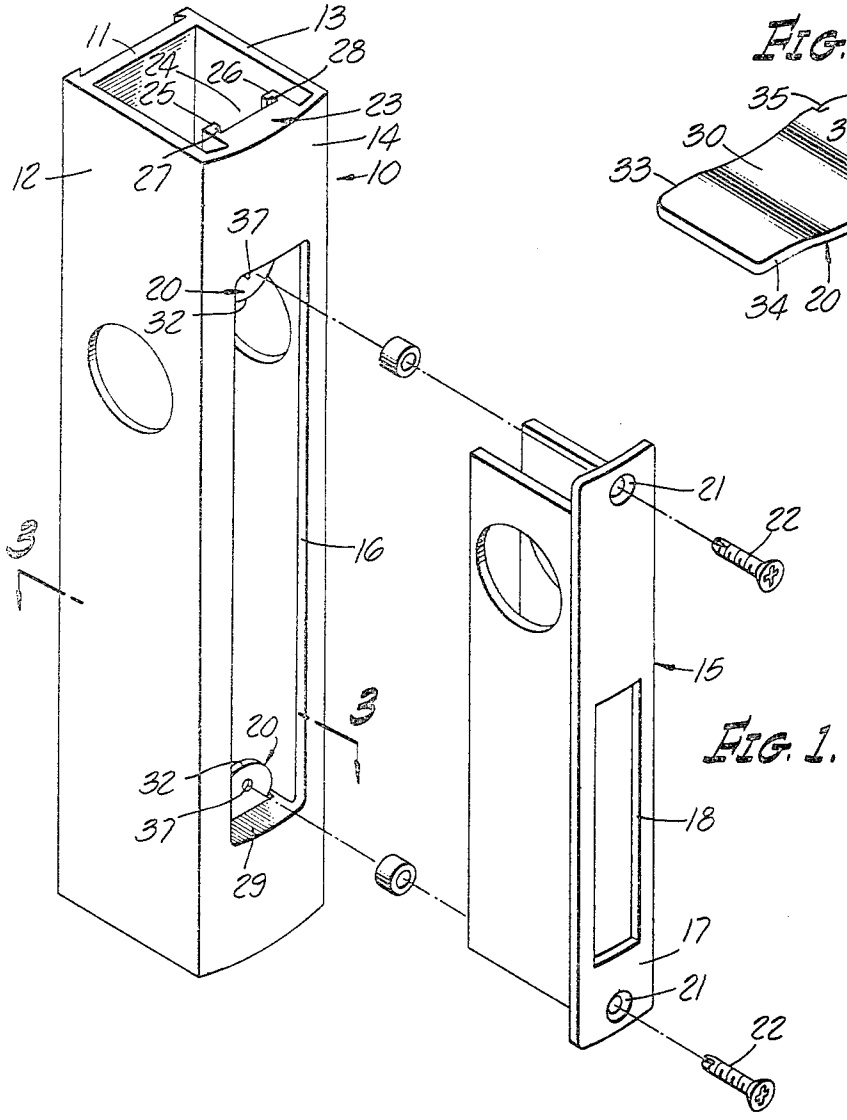


FIG. 1.

FIG. 2.

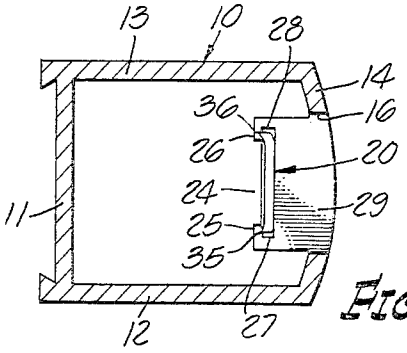


FIG. 3.

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LOCK MOUNTING MEANS FOR NARROW STILE DOOR FRAME

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ABSTRACT OF THE DISCLOSURE

Lock mounting means for securing a lock frame structure edgewise in a receiving opening provided in a wall of a hollow narrow stile door frame by means of elongate anchor clips positioned at the opposite ends of the opening, these clips being constructed from a generally flat material and undulated to permit their edge margins to be frictionally slidably supported in spaced apart receiving channels provided within a longitudinally extending rib integrally formed on the inner side of the nose wall of the hollow stile. Struck out stop projections at one end of the clip operate to limit its endwise movement during mounting insertion in the channels so that in a use position of the clip this end projects to a position relative to the lock mounting opening to receive a lock mounting member such as a screw into a threaded receiving opening provided in the clip end.

BACKGROUND OF THE INVENTION

The present invention pertains to the field of locks and mountings therefor.

Heretofore, a multiplicity of securing arrangements have been utilized for the mounting of locks, and particularly in installations in which the lock frame structure is to be mounted in an extruded narrow stile type of door frame. The generally known arrangements for this purpose have in the main been inflexible and expensive, and in some cases have embodied undesirable inherent disadvantages with respect to their installation.

The present invention in general constitutes improvements in lock mounting means of the type disclosed in the Charles L. Eads Patent No. 3,204,439 which utilizes a rigid mounting bracket and associated spring retainer arranged to be positioned within a hollow stile frame structure at each end of a lock receiving opening in the nose wall of the stile. In the patented mounting, a special tool is required for installing the mounting bracket and associated spring retainer.

The present invention briefly embodies a simplified structure over that shown in the above patent, wherein a rigid bracket member is provided in the form of a mounting clip which is so fabricated that it can, without the need of any special tools, be attached to an extruded integral part of the nose wall of the stile. This attachment is accomplished by a simple procedure in which the clip is inserted into a receiving passage constructed as a part of the stile body structure during its initial extrusion.

SUMMARY OF THE INVENTION

The present invention relates generally to mounting means for securing a lock frame structure edgewise in an edge opening of a hollow narrow stile door frame.

Having in mind the problems attending the use of conventional means for mounting locks in extruded hollow door frames, particularly of the narrow stile type, it is one object of the present invention to provide a simple foolproof mounting clip in association with a unique structure of the extruded narrow stile door frame, such that a

lock frame may be mounted in an opening in the nose wall thereof, without the necessity of having to utilize special placement tools, and which is so arranged that the usual lock mounting screws may be utilized.

A further object of the invention is to provide mounting means for use in the installation of lock structures in narrow stile door frames, which is simple in design, includes a minimum of parts, and may be quickly and easily installed, and which may be economically produced.

Still another object of the invention is to provide mounting means for locks which do not necessitate precision manufacturing techniques, and yet when installed will provide a positive holding means for the lock mechanism.

Still another object is to provide as an article of manufacture, clip members of unique design and construction for use in the mounting of lock frames in an associated extruded frame member, this frame member during its fabrication being provided with means for receiving the clips.

It is also an object of the herein described invention to provide a unique extruded door frame member of hollow construction, which is provided with an internal rib in its nose wall which becomes accessible as a clip receiving means, when the nose wall is cut out to provide an opening for receiving the lock frame.

Further objects of the invention will be brought out in the following part of the specification, wherein detailed description is for the purpose of fully disclosing the invention without placing limitations thereon.

BRIEF DESCRIPTION OF THE DRAWINGS

Referring to the accompanying drawings, which are for illustrative purposes only:

FIG. 1 is an exploded perspective view showing a stile extrusion and associated lock frame structure together with the mounting means, and indicating the manner in which these parts are assembled and utilized;

FIG. 2 is an enlarged perspective view of a clip mounting member embodying a structure according to the present invention; and

FIG. 3 is a transverse sectional view taken substantially on line 3—3 of FIG. 1, and showing details of the mounting means of the stile frame with a mounting clip therein.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring specifically to the drawings, the manner of utilizing the lock mounting means of the present invention is shown in FIG. 1. As generally indicated therein, the lock mounting means are arranged to be utilized in connection with an extruded narrow stile frame member **10** such as utilized in the frame structure of doors and the like. As normally constructed these frame members include a back wall **11**, side walls **12** and **13** and a top or nose wall **14** which in this case is disclosed as being slightly crowned.

When it is desired to mount a lock frame structure, such as indicated at **15** containing the lock mechanism, on the narrow stile, it is conventional procedure to mill or otherwise cut an elongate slot or opening as indicated at **16** in the nose wall to receive the frame structure. The frame structure is provided with a mounting plate **17** of proper shape to fit within the opening **16**. The lock mounting plate has an opening **18** through which the lock bolt (not shown) of conventional construction is adapted to be extended and retracted into locking and non-locking positions.

Further, in the mounted position of the lock frame structure the mounting plate **17** will be flush mounted within the opening **16**, being properly thus positioned by tubular spacer elements **19—19**. These spacer elements

are positioned respectively at the ends of the lock frame structure **15** and have their inner ends engaged with supporting clips as generally indicated at **20** as will hereinafter be more fully described. The outer ends of the spacers are adapted to bear against the ends of the mounting plate in alignment with opening **21—21** therein adapted to receive securing screws **22—22** by means of which the lock structure may be securely fastened to the clip members **20—20**.

As clearly shown in FIGS. 1 and 3, the structure of the narrow stile is modified in the top or nose wall portion over that usually contained in the conventional narrow stile structures. According to the present invention, the nose wall is provided with an inner longitudinally extending rib structure, as generally indicated at **23**. This rib is in a medial position between the sides of the nose wall and is integrally formed therewith during the extrusion process. The inner surface of this rib is in right angled relation to the side walls of the stile and is provided during the extrusion process with an inverted T-groove forming an entrance opening **24** which transversely extends between two flanges **25** and **26** subtended by adjacent side channels **27** and **28**.

Normally, the above mentioned groove extends continuously along the inner side of the nose wall. However, when the opening **16** is made in the nose wall for receiving the lock frame structure **15**, the rib portion is also cut through. As a result, end faces as indicated at **29** are formed at each end of the opening **16**, with the channels **27** and **28** in each case being accessible and forming run ways for slidably receiving the clip members **20** therein.

Referring now to FIG. 2, the construction of the clip member **20** will now be described. Each clip member is fabricated from an initially flat piece of suitable material such as steel or the like of substantially uniform thickness. The clip as shown comprises an elongatae body **30** of generally rectangular configuration. One end of the body is formed to provide a flat head portion **31** having an arcuate edge **32**, and at its opposite end is also formed with a flat end portion which is substantially coplanar with the head portion. The sides of the clip are formed with substantially parallel edges **33** and **34**, and adjacent the head portion **31**, struck out portions are made to provide projecting stops **35** and **36**. These stops serve to limit the travel of the inserted clip when it is mounted with its edge margins in sliding engagement in the channels **27** and **28**. At the limit of this travel, the head portion **31** of the clip will extend into the open space subtending the opening **16** and suitably position an opening **37** therein formed with suitable inner threads or other means for engaging an associated screw **22**. The clip is deformed between its flat end portions to provide along its length a series of undulations or waves **38** which extending to the edges **33** and **34** so as to provide a wedging fit when the clips are driven endwise into the rib groove into a mounted position. The clips are thus frictionally held in place and make it unnecessary to provide close tolerances in the structure.

From the foregoing description it is believed clearly evident that the designated objects of the invention will be attained.

Various modifications may suggest themselves to those skilled in the art without departing from the spirit of our invention, and, hence we do not wish to be restricted to the specific form shown or uses mentioned.

We claim:

1. As an article of manufacture, a structural member, comprising:

(a) an extruded elongate hollow tubular frame body having a wall enclosure including a nose wall extending longitudinally along one side thereof;

(b) an internal integrally formed rib extending along the inner surface of said nose wall and being positioned medially between opposed lateral edges of said nose wall; and

(c) a longitudinally extending inverted T-groove in said rib opening inwardly of said body in a direction away from said nose wall, said groove having longitudinally extending open channels respectively in its side walls with their open sides in facing relation and alignment in a direction transversely of said rib.

2. In lock mounting means, the combination comprising:

(a) an elongate tubular narrow stile having an elongate frame receiving opening therein;

(b) clip supporting means within the tubular stile at each end of said opening, said clip supporting means being extruded as an integral part of said stile and comprising an internal rib having a clip receiving passage extending longitudinally thereof;

(c) a clip supported by each of said means with a longitudinal axis extending longitudinally of the stile;

(d) a lock frame structure adapted to be positioned in said opening; and

(e) securing members carried by said frame respectively engaged with one of said clips.

3. In lock mounting means, the combination comprising:

(a) an elongate tubular narrow stile having an elongate frame receiving opening therein;

(b) clip supporting means within the tubular stile at each end of said opening;

(c) a clip supported by each of said means with a longitudinal axis extending longitudinally of the stile, said clip comprising an elongate member having moving sliding engagement with the clip supporting means, a thread engaging opening at one end, and a stop projection adjacent said one end engageable with the supporting means for terminating the clip movement at a mounted position of use;

(d) a lock frame structure adapted to be positioned in said opening; and

(e) securing members carried by said frame respectively engageable with the threaded opening of one of said clips.

4. Lock mounting means according to claim **2**, wherein the clip receiving passage includes side grooves for slidably receiving clip edges therein.

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