

DOOR LATCH ASSEMBLY

FIELD OF INVENTION

The present invention relates to latches and locks for doors. The present
5 invention has particular but not exclusive application for doors in warehouses and
storage facilities including self-storage facilities. The invention will be described in
the specification with reference to self-storage facilities but this is by way of example
only and the invention is not limited to this example.

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BACKGROUND OF THE INVENTION

A self-storage facility usually consists of a building with multiple partitioned
units where a person renting the space can store their goods. Each unit usually has
a door to access the internal space and is lockable to secure the stored goods. The
door of each unit usually opens to a corridor that can connect with other corridors to
15 provide a person with access to their storage space and allow a trolley loaded with
their goods to pass there along.

The units are usually built to one of several standard sizes to enable
repeatable modular construction and rapid installation. The corridors are relatively
narrow to make use of the maximum usable space. However, door handles, latches
20 and locks often protrude outwardly from the doors into the corridor causing safety
problems and interference with the mobility of the trolleys. As well, the door handle
and latch are separately located thereby compounding the problem. There is
currently no satisfactory way to address these problems.

OBJECT OF THE INVENTION

It is an object of the present invention to provide a door latch assembly that can be used on a door that overcomes at least in part one or more of the aforementioned problems.

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SUMMARY OF THE INVENTION

In one aspect the present invention broadly resides in a door latch assembly including

a base plate having a grip aperture;

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a tongue with a protruding grip portion;

a back guide to locate and retain the tongue with the base plate, said back guide is fixable to the base plate; and

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a handle member fixable to the base plate, wherein when assembled the grip portion protrudes through the grip aperture and the located and retained tongue can slide between a laterally extended and non-extended position relative to the base plate.

In a preferred form the base plate is recessed with a proud peripherally lip portion. The grip aperture and the handle member are preferably located in the recess section of the base plate.

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The base plate is preferably substantially rectangular. More preferably the base plate is substantially rectangular with one end having a curved or arcuate shape. Preferably the tongue extends laterally from the curved or arcuate shaped end.

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Preferably the base plate has at least one plate lug with an aperture and an associated grip lug with an aperture, wherein when the tongue is laterally extended

the respective apertures align, thereby allowing a padlock or the like to be positioned through the apertures to lock the tongue relative to the base plate. More preferably there are two plate lugs each of which has an aperture and two associated grip lugs each of which has an aperture, wherein when the tongue is laterally extended each
5 corresponding plate lug aperture and grip lug aperture align to provide two position options for locking the latch assembly.

The two plate lugs and the two grip lugs are preferably arranged to provide a locking position when the base plate and assembled latch assembly is in either a normal or inverted position to accommodate right hand and left hand opening doors.

10 Preferably the grip portion is retained within the grip aperture and the movement of the grip portion is limited by the opposing peripheral edges of the grip aperture.

The base plate is preferably fixable to the back guide by one or more fasteners. Preferably there are four fasteners positionable near corners of the
15 substantially rectangular base plate. Preferably the fasteners are bolts with locking nuts. Preferably the fasteners are also used to fix the door latch assembly to the door.

Preferably the handle member is positionable adjacent the curved end of the base plate. Preferably the handle member is substantially arcuate with an internal
20 recess to serve as a hand grip. Preferably one or more of the fasteners fixing the base plate to the back guide fix the handle member to the base plate.

There is preferably a keyed lock mountable to the base plate to provide an alternative or complementary lock. The keyed lock preferably locks the tongue relative to the base plate. The keyed lock is preferably positioned between the grip
25 aperture and the handle member. The keyed lock is preferably a bezel-type lock.

The door latch assembly of the current aspect preferably includes different combinations and permutations of the preferred features and optional features described above.

5 Preferably the door latch assembly can be used with swing doors, sliding doors and roller doors.

In another aspect the invention broadly resides in a door with the door latch assembly as described above. This aspect includes all the variations and combinations of the door latch assembly as described above

10 Preferably the door has a recess for the positioning of the door latch assembly so that the peripheral lip of the base plate is substantially flush with the face of the door when assembled and fitted to the door.

15 Preferably the door has one or more stiffening members extending across the width of the door. More preferably there is at least one stiffening member positionable within the door frame and at least in-part fixed in position by the one or more fasteners which fasten the door latch assembly to the door.

BRIEF DESCRIPTION OF THE DRAWINGS

20 In order that the present invention can be more readily understood reference will now be made to the accompanying drawings which illustrates a preferred embodiment of the invention and wherein:

Figure 1 is a diagrammatic front side view of the assembled door latch assembly of the preferred embodiment;

25 Figure 2 is a diagrammatic front view of the assembled door latch assembly of the preferred embodiment;

Figure 3 is a diagrammatic rear side view of the assembled door latch assembly of the preferred embodiment;

Figure 4 is a diagrammatic rear view of the assembled door latch assembly of the preferred embodiment;

5 Figure 5 is a diagrammatic right side view of the assembled door latch assembly of the preferred embodiment;

Figure 6 is a diagrammatic top view of the assembled door latch assembly of the preferred embodiment;

10 Figure 7 is an exploded view of the assembled door latch assembly of the preferred embodiment;

Figure 8 is a diagrammatic front view of a door with the assembled door latch assembly of the preferred embodiment; and

Figure 9 is a diagrammatic rear view of a door with the assembled door latch assembly of the preferred embodiment.

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DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

With reference to figures 1 to 6, there is shown an assembled door latch assembly 10 which includes base plate 11, tongue 12, back guide 13 and handle 14.

20 The base plate 11 is substantially rectangular with a curved end portion 16. The base plate 11 has a raised peripheral lip 17. The base plate 11 has a grip aperture 18 through which projects a grip portion 19 from the tongue 12. The grip portion 19 can move within the grip aperture 18 so that when the grip portion 19 is in a forward position the tongue 12 is laterally extended and when the grip portion 19 is in a rearward position, the tongue 12 is retracted.

Plate lugs 20, 21 are formed from a punched and bent section of the base plate 11. Each of the plate lugs 20, 21 have an aperture 22. There are also two grip lugs 23, 24 which extend laterally in opposite directions from opposing ends of the grip portion 19. Each of the grip lugs 23, 24 have an aperture 25. When the grip
5 portion 19 is moved forward and the tongue 12 is laterally extended, the plate lugs 20 and 21 overlap the grip lugs 23 and 24 respectively so that the apertures 22 and 25 are aligned to allow the placement of a padlock or the like.

The handle 14 is positioned adjacent the curved end portion 16. The handle 14 has a recess 29 to provide a finger grip to assist with the opening and closing of
10 the door. The handle 14 is preferably made of plastics material. The handle 14 is symmetrically shaped so that when the handle 14 is fixed to the base plate 11, the base plate 11 can be inverted and the handle 14 can provide the same functionality.

The back guide 13 is positionable on the rear face of the base plate 11. The back guide 13 is substantially elongate with a longitudinal channel 30 that
15 accommodates the tongue 12. During assembly the tongue 12 is retained by the back guide 13.

The tongue 12 is a substantially elongate arm that includes a grip portion 19 at one end and an angled section 31 at the opposing end. With further reference to figure 7, the grip portion 19 includes a two part grip section 32 with a grip support 33
20 that has the laterally extending grip lugs 23, 24. The tongue 12 also has a lock aperture 36 where a locking pin can project there through. The handle 14 and back guide 13 are fixed in the assembled position with the base plate 11 by fasteners 33 and nuts 34. The fasteners 33 and nuts 34 are also used to mount the latch assembly 10 to the door.

In the figures there is also shown a keyed lock housing 35 substantially centrally located on the base plate 11. A bezel type lock can be fitted to the keyed lock housing 35 to provide additional security to lock the latch assembly 10. Within the keyed lock housing 35, the base plate 11 has an aperture to enable a locking pin 5 to project from the bezel type lock and through the tongue aperture 36.

The door latch assembly 10 can be positioned on the right hand side or left hand side of the door depending on how the door opens. The door latch assembly 10 is positioned so that the curved end portion 16 is adjacent the opening edge of the door. Because of the symmetry in the design of the door latch assembly, the 10 same door latch assembly 10 can be used for both left hand and right hand opening by inverting the door latch assembly 10. The symmetry of the design substantially resides in the base plate 11, the grip portion 19 and associated plate lugs 20, 21 and the handle 14. The door latch assembly 10 provides the advantage that only one door latch assembly is required rather than having the need to have a right hand and 15 a left hand door latch.

With reference to figures 8 and 9, there is shown a door 40 with a door latch assembly 10 attached thereto. In figure 8, a front surface 41 of the door 40 is shown. The door latch assembly 10 is positioned within a recess (not shown) in the front surface 41 of the door 40 so that the lip 17 of the door latch assembly 10 is 20 substantially flush with the front surface 41. With the door latch assembly 10 being substantially flush with the front surface 41, there are no outwardly extending projections or sharp edges to cause injury or interference with a person walking past or opening the door 40. In addition the flush finish provided by the door latch assembly 10 is comparatively more aesthetically pleasing than current latches.

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In figure 9, the rear side 42 of the door 40 is shown. The door 40 is strengthened by three horizontally positioned ribs 43 spaced apart from each other. The ribs 43 are substantially u-shaped with an internal channel. There is a rib 43 positioned adjacent the top of the door 40, bottom of the door 40 and substantially in the middle of the door 40. The middle rib 45 is in part fixed in position by the mounting fasteners 33 and nuts 34 for the door latch assembly 10. With the fastening by fasteners 33 and nuts 34, the middle rib 45 can be positioned by direct placement rather than sliding into position from either the top or bottom ends. The use of fasteners 33 and nuts 34 avoids the need for the middle rib 45 to fit tightly within the opposing turned door ends and thus avoid the associated problems of fastening or gluing the middle rib 45 in position.

ADVANTAGES

The preferred embodiment of the present invention provides a door with a latch, handle and locking arrangement in a single assembly. Furthermore the preferred embodiment of the latch assembly is recessed so as to not protrude into the corridor or interfere with passage along the corridor. The preferred embodiment of the latch assembly can be inverted to accommodate both right hand and left hand opening doors.

VARIATIONS

It will of course be realised that while the foregoing has been given by way of illustrative example of this invention, all such and other modifications and variations thereto as would be apparent to persons skilled in the art are deemed to fall within the broad scope and ambit of this invention as is herein set forth.

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Throughout the description and claims this specification the word "comprise" and variations of that word such as "comprises" and "comprising", are not intended to exclude other additives, components, integers or steps.

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CLAIMS

1. A door latch assembly including

a base plate having a grip aperture;

5 a tongue with a protruding grip portion;

a back guide to locate and retain the tongue with the base plate, said back guide is fixable to the base plate; and

a handle member fixable to the base plate, wherein when assembled the grip portion protrudes through the grip aperture and the located and retained tongue can
10 slide between a laterally extended and non-extended position relative to the base plate.

2. A door latch assembly according to claim 1 wherein the base plate is recessed with a proud peripherally lip portion.

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3. A door latch assembly according to claim 2 wherein the grip aperture and the handle member are located in the recess section of the base plate.

4. A door latch assembly according to any one of claims 1 to 3 wherein the base
20 plate is substantially rectangular with one end having a curved or arcuate shape.

5. A door latch assembly according to claim 4 wherein the tongue extends laterally from the curved or arcuate shaped end.

6. A door latch assembly according to any one of claims 1 to 5 wherein the base plate has at least one plate lug with an aperture and an associated grip lug with an aperture, wherein when the tongue is laterally extended the respective apertures align, thereby allowing a padlock or the like to be positioned through the apertures to lock the tongue relative to the base plate.
7. A door latch assembly according to claim 6 wherein the base plate has two plate lugs each of which has an aperture and two associated grip lugs each of which has an aperture, wherein when the tongue is laterally extended each corresponding plate lug aperture and grip lug aperture align to provide two position options for locking the latch assembly.
8. A door latch assembly according to claim 7 wherein the two plate lugs and the two grip lugs are arranged to provide a locking position when the base plate and assembled latch assembly is in either a normal or inverted position to accommodate right hand and left hand opening doors.
9. A door latch assembly according to any one of claims 1 to 8 wherein the grip portion is retained within the grip aperture and the movement of the grip portion is limited by the opposing peripheral edges of the grip aperture.
10. A door latch assembly according to any one of claims 1 to 8 wherein the base plate is fixable to the back guide by one or more fasteners.

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11. A door latch assembly according to any one of claims 4 to 10 wherein the base plate is fixable to the back guide by four fasteners positionable near corners of the substantially rectangular base plate.

5 12. A door latch assembly according to claim 11 wherein the fasteners are also used to fix the door latch assembly to the door.

13. A door latch assembly according to any one of claims 4 to 12 wherein the handle member is positionable adjacent the curved end of the base plate.

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14. A door latch assembly according to claim 13 wherein the handle member is substantially arcuate with an internal recess to serve as a hand grip.

15 15. A door latch assembly according to claim 10 wherein the one or more of the fasteners fixing the base plate to the back guide fix the handle member to the base plate.

16. A door latch assembly according to any one of claims 1 to 15 wherein there is a keyed lock mountable to the base plate to provide an alternative or complementary
20 lock.

17. A door with a door latch assembly according to any one of claims 1 to 16.

18. A door with a door latch assembly according to any one of claims 2 to 16
25 wherein there is a recess for the positioning of the door latch assembly so that the

peripheral lip of the base plate is substantially flush with the face of the door when assembled and fitted to the door.

19. A door according to claim 17 or claim 18 wherein the door has one or more
5 stiffening members extending across the width of the door.

20. A door according to claim 19 wherein there is at least one stiffening member
positionable within the door frame and at least in-part fixed in position by one or
more fasteners which fasten the door latch assembly to the door.