

A MORTICE LOCK ASSEMBLY WITH ADJUSTABLE PASSAGE SELECTOR

TECHNICAL FIELD

[0001] The invention relates to a mortice lock assembly for installation in a door. One form of mortice lock assembly includes a latchbolt that is biased towards an extended position, with an actuator to move the latchbolt from the extended position towards a retracted position. A lock means is primarily included to control operation of the actuator. The mortice lock assembly will often form part of a lockset including door furniture and it will be convenient to hereinafter describe the invention with reference to this in use application.

BACKGROUND OF INVENTION

[0002] A mortice lock assembly is one form of lock assembly that is located in a mortice cavity formed in a side edge of a door panel. Openings are also made in the inner side of the door and the outer side of the door, into the mortice cavity, so that inner and outer door furniture can connect to the lock assembly. The form that the door furniture takes is dependent upon the user's security requirements for the door and lock assembly. The door furniture may include a lever handle or turn knob on one or both sides of the door, that interacts with the actuator. Rotation of the handle or knob from either side of the door will result in retraction of the latchbolt from the extended position.

[0003] The door furniture may also provide for a cylinder lock to be fitted on one or both sides of the door, for operating the lock means within the lock assembly. The lock means controls operation of the actuator, to prevent rotation of the handle or knob from either side of the door, when the lock mechanism is in an active condition. It may however be desirable for the lock assembly to permit operation of the actuator, from either an inner or outer side of the door, despite the lock mechanism being capable of adopting an active condition. This can be referred to as setting the mortice lock assembly to a passage mode.

[0004] Lock manufacturers tend to prefer that the lock assembly housing remains closed once it leaves the factory so as to prevent improper lock function setting. This also reduces the likelihood that internal elements of the mortice lock assembly are

dislodged or damaged during installation, which in turn reduces the number of warranty claims. However setting the mortice lock assembly to passage mode generally requires adjustment of various internal elements of the lock assembly. It is generally desirable to be able to make the required adjustments while keeping the housing closed.

[0005] The applicant is aware of existing mortice lock assemblies that include openings in walls of the housing to permit limited access to internal elements of the mortice lock while keeping the housing closed. These openings have been located in the inner or outer side wall, and the rear wall of the housing. Access to these openings is inhibited once the mortice lock assembly is installed in the mortice cavity. Accordingly the mortice lock assembly needs to be removed from the door if the passage mode selection requires adjustment, or has been incorrectly set. This generally requires a face plate to be unscrewed from a front wall of the housing and the front wall unscrewed from the door. Thereafter the adjustment to the passage mode can be made and the mortice lock assembly reinstalled in the mortice cavity. It is generally desirable that if adjustments to the mortice lock assembly need to be made, the time required to make adjustments is minimised.

[0006] One way in which mortice lock assemblies are sold is as part of a door and lock package. The door manufacturer will purchase the mortice lock assembly from the lock supplier, and install the mortice lock assembly in their manufacturing facility before delivering to site. Installing the mortice lock assembly off site is generally considered more cost effective than installing on site. However if the mortice lock assembly needs to be adjusted to passage mode on the inner or outer side, its removal from the mortice cavity will reduce any cost saving of installing off site.

SUMMARY OF INVENTION

[0007] According to this invention there is provided a mortice lock assembly for installation in a door including, a housing, a bolt movable relative to a front of the housing between an extended position and a retracted position, an actuator including an inner hub and an outer hub that in use are rotatable from an inner side and an outer side of the door respectively to move the bolt from the extended position towards the retracted position, a lock means including a slide detent that is movable

relative to the housing, an inner pawl and outer pawl that interacts with the slide detent for adjusting between a release position and a latched position relative to the inner hub and outer hub respectively so that in the latched position the respective inner hub or outer hub is prevented from rotating, an adjuster including a cam that is rotatable proximate the front of the housing and a cam detent means for interacting with the cam to facilitate retaining the cam in one of a plurality of selected positions, the adjuster including an inner follower and an outer follower each interacting between the cam, the inner pawl and outer pawl respectively, whereby the adjuster is operable to adjust the inner pawl and/or outer pawl between the release position and a deactivated position so as to permit or prevent respectively said interaction of the inner pawl and/or outer pawl with the slide detent.

[0008] The adjuster preferably includes biasing means for biasing the inner follower and outer follower towards the cam. It is preferred that the cam includes a cam surface whereby the inner follower and or outer follower engages the cam surface when their respective inner pawl and/or outer pawl are in the release condition or the deactivated condition. The inner follower and/or outer follower preferably disengage from the cam surface when their respective inner pawl and/or outer pawl are in the latch condition. It is preferred that the cam rotates about a cam axis which is substantially aligned with a direction in which the bolt moves, and the cam surface extends radially from the cam axis.

[0009] It is preferred that when the inner pawl and/or outer pawl is retained in the latched position by the lock means the respective inner follower and/or outer follower interacts with the cam to prevent its operation. The inner follower and outer follower preferably each include a tab that interacts with a formation of the cam to prevent rotation of the cam when the respective inner pawl and/or outer pawl is in the latch condition. It is further preferred that the formation on the cam includes a plurality of lugs projecting radially from the cam which align with and abut the tab of the inner follower or outer follower so as to prevent rotation.

[0010] It is preferred that the detent slide moves linearly relative to the housing when adjusting the inner pawl and/or outer pawl between the latch position and the release position. The detent slide is preferably spaced from the inner pawl and/or outer pawl when in the release position. It is preferred that the inner pawl and the outer pawl include an engaging surface configured to facilitate the detent slide sliding

over the inner pawl and/or outer pawl when adjusting between the release condition and the latch condition. The engaging surface of the inner pawl and the outer pawl is preferably a ramp surface that is substantially aligned transverse to a direction in which the detent slide moves.

[0011] The mortice lock assembly preferably includes a cam detent means for interacting with the cam to facilitate retaining the cam in one of a plurality of selected positions. The cam detent means preferably includes a ball and the cam is formed with a plurality of recesses that interact with the ball to retain the cam in the selected position. It is preferred that the cam includes four recesses which are at 90° spacing's around a periphery of the cam.

[0012] A reference herein to a patent document or other matter which is given as prior art is not to be taken as an admission that that document or matter was, in Australia, known or that the information it contains was part of the common general knowledge as at the priority date of any of the claims.

BRIEF DESCRIPTION OF DRAWINGS

[0013] It will be convenient to hereinafter describe the invention with greater detail by reference to the attached illustrations. The attached illustrations show two preferred embodiments of the invention. The drawings, and the following detailed description, are merely illustrative of how the invention might be put into effect. The specific form and arrangement of the various features as shown is not to be understood as limiting on the invention.

[0014] Figure 1 is an isometric partly exploded view of a lockset incorporating one preferred embodiment of the mortice lock assembly incorporating the invention prior to installation in a door.

[0015] Figure 2 is an isometric view of the mortice lock assembly from Figure 1 with the cover removed from the base of the housing, with the face plate detached from the front wall.

[0016] Figure 3 is a front elevation view of the mortice lock assembly from Figure 2 with the latchbolt in an extended position.

[0017] Figure 4 is a front elevation view of the mortice lock assembly from Figure 3, with the inner hub rotated to retract the latchbolt assembly.

[0018] Figure 5 is a front elevation view of the mortice lock assembly from Figure 2 with the latchbolt assembly in the extended position, and the lock means in an active condition.

[0019] Figure 6 is a front elevation view of the mortice lock assembly from Figure 2 with the lock means in an inactive condition, and the inner pawl in a deactivated condition.

[0020] Figure 7 is a front elevation view of the mortice lock assembly from Figure 6 with the lock means in an active condition.

[0021] Figure 8 is an exploded view of the lock means, the actuator and adjuster from Figure 2.

[0022] Figure 9 is a part detailed view of the lock means and adjuster in the configuration shown in Figure 3.

[0023] Figure 10 is a part detailed view of the lock means and adjuster shown in the configuration corresponding to Figure 5.

[0024] Figure 11 is a part detailed view of the lock means and adjuster shown in the view corresponding to Figure 6.

[0025] Figure 12 is an isometric view of another preferred embodiment of the mortice lock assembly incorporating the invention with a cover removed from a base of the housing.

[0026] Figure 13 is an exploded view of an adjuster, actuator and lock means from Figure 12.

[0027] Figure 14 is a part detailed view of the adjuster, actuator and lock means from Figure 13, with the inner pawl in the release position.

[0028] Figure 15 is a part detailed view of the components from Figure 14 with the inner pawl adjusted to the latch position.

[0029] Figure 16 is a part detailed view of the components from Figure 13 with the inner pawl adjusted to the deactivated condition.

DETAILED DESCRIPTION OF DRAWINGS

[0030] Referring now to Figure 1 which illustrates an example of a lockset 1 including in summary a mortice lock assembly 2, inner door furniture 3 and outer door furniture 4. The mortice lock assembly 2 includes a housing 5 which in use is located in a mortice cavity 6 formed in a side edge of a door 7. The inner door furniture 3 is positioned adjacent an inner side of the door 7 and the outer door furniture 4 is positioned adjacent an outer side of the door 7. It should be noted that the mortice lock assembly 2 is being described with reference to its in use orientation and terms such as “inner” and “outer” should be construed in light of this orientation. However, it is to be appreciated that other orientations are equally possible and that consequential changes in terms such as those above may be required in light of the other orientations for proper understanding of the invention.

[0031] The inner door furniture 3 illustrated in Figure 1 includes a rectangular shaped inner escutcheon 8, an inner lever handle 9 and an inner cylinder lock assembly 10. When the inner door furniture 3 is installed, the inner cylinder lock assembly 10 is aligned with an opening formed in the inner escutcheon 8. Similarly, the outer door furniture 4 includes an outer rectangular shaped escutcheon, an outer lever handle 13 and an outer cylinder lock assembly 14. Again, when the outer door furniture 4 is installed, the outer cylinder lock assembly 4 is located in an opening 15 formed in the outer escutcheon 12.

[0032] The inner lever handle 9 and outer lever handle 13 are each rotatable about an actuator axis XX so as to rotate an inner spindle 16 and outer spindle 17 respectively. The inner spindle 16 and outer spindle 17 interact with an actuator 18 of the mortice lock assembly 2, only a portion of which is visible in Figure 1. The actuator 18 will be described in greater detail with reference to later illustrations. It should be appreciated that the inner handle 9 and outer handle 13 illustrated are merely one preferred form of hand engagement member suitable for rotating the inner spindle 16 and outer spindle 17 respectively. Alternatively, the inner handle 9 and outer handle 13 may be replaced by a turn knob or the like.

[0033] The inner cylinder lock assembly 10 and outer cylinder lock assembly 14 each include a casing 19, and a barrel 20 (only the barrel 20 associated with the inner cylinder lock assembly 10 is visible in Figure 1) which is rotatable within the casing 19 by inserting an appropriate key (not shown). A cam 21 (only a cam 21 on the outer cylinder lock 14 is visible in Figure 1) is attachable to the rear of the barrel 20 so as to rotate with the barrel 20. The cam 21 interacts with features of the mortice lock assembly 2 in a manner that will be described in greater detail with reference to later illustrations. It should be appreciated however that the shape of a cam 21 may vary from that illustrated in Figure 1 depending on features within the mortice lock assembly 2 that are to be interacted with. Furthermore, whilst Figure 1 suggests pin tumbler cylinder lock assemblies 10, 14, the invention may also be suitable with other forms of cylinder lock assembly.

[0034] The housing 15 illustrated in Figure 1 includes a base 22, and a cover 23 attached to the base 22 by screw fasteners 24. A front wall 25 is attached to the base 22 by screw fasteners 36 (see Figure 2). A face plate 26 is also attached to the base 22 through the front wall 25 by way of screw fasteners 27 (also see Figure 1). It can be appreciated from Figure 2 that the face plate 26 is intended to be detachable from the housing 5 by removing the screw fasteners 27 when the door 7 is in an open condition. This provides access to an adjuster 27 including a cam 28 that is positioned adjacent the front wall 25. Operation of the adjuster 27 will be described in greater detail by reference to later illustrations. However, it should be noted from Figure 2 that the front wall 25 includes a circular opening 29 with two arcuate windows 30 positioned above the circular opening 29. The circular opening 29 provides an access point for engaging with the cam 28, whilst the arcuate windows 30 allow the orientation of the cam 28 to be viewed therethrough. Figure 8 illustrated a rectangular slot 31 in the front of the cam 28 which is accessible through the circular opening 29 by a screw driver so as to rotate the cam 28. While a front face 32 of the cam 28 has a visual indicator formed thereon which is visible through the arcuate windows 30.

[0035] The invention includes a bolt 33 movable relative to the front 25 of the housing 5 between an extended position and a retracted position. The bolt 33 may take any form and Figure 2 illustrates a preferred form of a latchbolt assembly 33 having a bevelled head 34 and body 35. The shape of a head 34 may vary from the bevelled shape as illustrated, as for example, the head 34 may instead have a bull

nose shape. The latchbolt assembly 33 is illustrated in Figure 2 in an extended position whereby the head projects out through an opening in the front wall 25. A latchbolt biasing means 37 illustrated in the form of a compression spring acts between the latchbolt assembly 33 and an abutment 38. The latchbolt biasing means 37 acts on the latchbolt assembly 33 to bias it towards the extended position.

[0036] Figure 2 also illustrates an auxiliary bolt 39 having a wedge shaped head 40 extending out through another opening in the front wall 25. The auxiliary bolt includes a body 41 which is located behind the front wall 25 within the housing 5 so as to interact with a deadlocking mechanism 42 located on the body 35 of the latchbolt assembly 35. An auxiliary bolt biasing means 43, illustrated again in the preferred form of a compression spring, acts between the auxiliary bolt 39 and an abutment 44. The abutment 44 is illustrated as formed integrally with the base 22. The auxiliary bolt biasing means 43 biases the auxiliary bolt 39 towards the extended position as illustrated in Figure 2.

[0037] The deadlocking mechanism 42 illustrated in Figure 2 includes a deadlocking member 45 which prevents movement of the latchbolt assembly 33 from the extended position while the deadlocking member is aligned with a stop 46 associated with the base 22. Whilst the auxiliary bolt 39 remains in the extended position, such as when the door is an open position, the body 41 interacts with the deadlocking member 45 so as to avoid engaging the stop 46. However, when the door 7 is closed and the auxiliary bolt 39 retracted and the latchbolt 33 extended, the deadlocking member 45 will be aligned with the stop 22. A shuttle 47 located on the body 35 interacts with the deadlocking member 45 and is moved by the actuator 18 or cam 21, realigning the deadlocking member 45 relative to the stop 46. The deadlocking mechanism 42 is considered to be in an active condition when the deadlocking member 45 is aligned to engage the stop 46, and in an inactive condition when the deadlocking member 45 is moved to avoid engaging the stop 46.

[0038] The mortice lock assembly 2 according to the invention includes the actuator 18 including an inner hub 48 and an outer hub 49 that in use are rotatable from an inner side and outer side of the door 7 respectively to move the bolt 33 from the extended position towards the retracted position. The actuator 18 may take any form so as to achieve this function, and Figure 2 is merely illustrative of one preferred

form of actuator 18, and Figure 12 is illustrative of another form of actuator 18. The actuator 18 from Figure 2 is more clearly illustrated in Figure 8 which illustrates the actuator 18 in an exploded view including the inner hub 48 and an outer hub 49. Each of the inner hub 48 and outer hub 49 include an arm portion 50 which can be seen from Figure 2 projects to interact with latchbolt assembly 33. The inner hub 48 and outer hub 49 also include a projecting portion 51 which can be seen from Figure 2 as interacting with an actuator biasing means 52. The actuator biasing means 52 urges each of the inner hub 48 and outer hub 49 to adopt the position as illustrated in Figure 2. Each of the inner hub 48 and outer hub 49 include a spindle recess 53 (see Figure 8 for the spindle recess 53 of the outer hub 49) for receiving the inner spindle 16 and outer spindle 17 respectively. Rotation of either the inner hub 48 or outer hub 49 to move the shuttle 47 towards the rear wall 54 of the housing 5 adjusts the deadlocking mechanism 42 to an inactive condition, allowing the latchbolt assembly 33 to move towards the retracted position.

[0039] The mortice lock assembly 2 according to the invention includes a lock means 35 which in summary includes a slide detent 56, an inner pawl 57 and an outer pawl 58. The slide detent 56 interacts with the inner pawl 57 and/or outer pawl 58 for adjusting between a release position and a latch position relative to the inner hub 48 and outer hub 49 respectively. When the inner pawl 57 and/or pawl 58 is in the latch position, the respective inner hub 48 or outer hub 49 is prevented from rotating. The lock means 55 may take any form in order to achieve this function and the invention is not limited to the lock means 55 illustrated. The preferred form of slide detent 56 illustrated in Figure 2 includes a head end 59 configured to interact with the cam 21 of the outer cylinder lock 14. It ought to be appreciated that the head end 59 of the slide detent is also configured to interact with the inner cylinder lock 10 which is not shown in Figure 2. The slide detent 56 has a foot end 60 which interacts with the inner pawl 57 and outer pawl 58 (see Figure 8). Figure 2 illustrates the foot end 60 spaced from the inner pawl 57, and the inner pawl 57 being in the release position. The inner pawl 57 (and outer pawl 58, see Figure 8), are mounted on a pawl shaft 61 for rotation thereabouts. Rotation of the inner pawl 57 (and outer pawl 58, see Figure 8) about the pawl shaft 61 results from interaction with the slide detent 56 or adjuster 27 which will be described in greater detail by reference to later illustrations.

[0040] The mortice lock assembly 2 according to the invention includes an adjuster 27 which is operable to adjust the inner pawl 57 and/or outer pawl 58 between the release position and a deactivated position. When the inner pawl 57 and/or outer pawl 58 are in the deactivated position, they are prevented from interacting with the slide detent 56. The adjuster 27 may take any form to achieve this function and the invention is not limited to the adjuster 27 as illustrated. The adjuster 27 illustrated in Figure 2, and more clearly in Figure 8, includes the cam 28 that interacts with an inner follower 62 and an outer follower 63 associated with the inner pawl 57 and outer pawl 58 respectively. The cam 28 includes a cam surface 64 formed to the rear of the view shown in Figure 8 which interacts with a head 65 end of the inner follower 62 and outer follower 63. Rotation of the cam 28 about a cam axis CC causes the head end 65 of the inner follower 62 and outer follower 63 to slide over the cam surface 64. This causes adjustment of the position of the inner followed 62 and outer follower 63 in a direction parallel with the cam axis CC. Figure 8 also illustrates each of the inner follower 62 and outer follower 63 having a hooked tail end 66 for locating around a trailing leg 67 of the inner pawl 57 and outer pawl 58 respectively. Furthermore, the inner follower 62 and outer follower 63 have biasing springs 68 acting thereon. Figure 2 illustrates the biasing spring 68 acting on the outer follower 63 urging it towards engagement with the cam 28. The equivalent inner biasing spring 68 is removed from Figure 2 to provide a clearer illustration.

[0041] Figure 8 also illustrates a cam detent means 68 which acts on the cam 28. The cam detent means 68 preferably includes a ball 69 biased by a spring 70 towards location within one of a plurality of recesses 71 formed in the outer surface of the cam 28. Figure 8 illustrates two recesses 71 formed in the cam 28, and it should be understood that a further two recesses 71 are formed on opposing surfaces of the cam 28. Each one of the recesses 71 corresponds to a rotational position of the cam 28 about the cam axis CC for adjusting the position of the inner follower 62 or outer follower 63.

[0042] Figure 8 also illustrates a pair of radial projections 72 on the cam 28 that interact with a lobe 73 formed on each head 65, when the respective inner pawl 57 or outer pawl 58 is in a latch position. This interaction of the lobe 73 with radial projections 72 inhibits rotation of the cam 28.

[0043] The manner in which the mortice lock 2 operates, or more specifically how the latchbolt assembly 33 is retracted, will now be described with reference to Figures 3 and 4. Figure 3 illustrates the latchbolt assembly 33 in an extended position, the auxiliary bolt 39 in an extended position with the dead latch mechanism 42 in an inactive condition. The detent slide 56 is in a raised position disengaged from the inner pawl 57. The adjuster 27 is set so the inner pawl 57 adopts the release position. With the inner pawl 57 in the release position, the inner hub 48 can be rotated, as shown in Figure 4 to move the arm portion 50 so as to retract the latchbolt assembly 33. It should also be noted from Figure 4 that the rotation of the inner hub 48 has caused the actuator biasing means 52 to compress so when the inner lever 9 (see Figure 1) is released, the inner hub 48 will return to the position illustrated in Figure 3. Furthermore, it should be noted from Figure 4 that the latchbolt biasing means 37 is also compressed so when the inner lever 9 is released, the latchbolt assembly 33 will return to the position illustrated in Figure 3.

[0044] The manner in which the lock means 55 operates will now be described with reference to Figures 3 and 5. Figure 3 illustrates the slide detent 56 in a raised position so the foot end 60 of the slide detent 56 is disengaged from the inner pawl 57. Figure 5 illustrates the cam 21 associated with the outer cylinder lock 14 rotated to drive the slide detent 56 down. This causes the foot end 60 to slide over an upper surface 74 of the inner pawl 57 causing the inner pawl 57 to rotate about the pawl shaft 61. This rotation causes the inner follower 62 to withdraw against the action of the inner follower biasing spring 68. With the inner pawl 57 in the latch position illustrated in Figure 5, it engages and prevents rotation of the inner hub 48 thereby preventing the inner hub 48 from retracting the latchbolt 33. It should also be noted from Figures 3 and 5 that the slide detent 56 is bistable in either the raised or lowered position by the interaction of a ball detent on the slide detent 56 with a ridge 76 formed in the rear wall 54 of the housing. More specifically, the slide detent 56 will remain in a lowered position illustrated in Figure 5 even after the cam 21 of the outer cylinder lock 14 is returned to the position illustrated in Figure 3. The slide detent 56 is returned to the raised position illustrated in Figure 3 by rotation of the cam 21 in the opposite direction until the opposite arm of the cam 21 engages the slide detent 58.

[0045] The manner in which the inner pawl 57 is adjusted to a deactivated position will now be described with reference to Figure 3 and 6. Figure 3 illustrates the inner

pawl 57 in the release position. Referring firstly to Figure 3 the rotational position of the cam 28, along with the position of the head 65 of the inner follower 62 relative to the front wall 25 should be noted. The head 65 of the inner follower 62 is engaging the cam surface 64 the influence of the inner follower biasing spring 68 forcing the inner follower towards the front wall 25. Figure 6 illustrates the cam 28 having been rotated about the cam axis CC with the head 65 sliding over the cam surface 64. This causes the inner pawl 5 to rotate so as to adopt the deactivated position. The cam detent 68 retains the cam 28 in the rotational position illustrated. It can be appreciated by reference to Figure 7 that with the inner pawl 57 in the deactivated position, movement of the slide detent 56 down will not result in interaction of the foot end 60 of the detent slide with the inner pawl 57. More specifically it prevents the inner pawl 57 from being rotated to the latch position. With the inner pawl 57 in this deactivated position, the inner lever handle 9 can be used to retract the latchbolt assembly regardless of the condition of the lock means 55.

[0046] Referring now to Figure 12 which illustrates a mortice lock assembly 2 according to an alternate preferred embodiment of the invention, where like features from the first embodiment are given like reference numbers. The mortice lock assembly 2 illustrated can generally be referred to as a short back set mortice lock assembly 2 and is illustrated with the cover removed in a manner similar to the mortice lock assembly illustrated in Figure 2. The mortice lock assembly 2 illustrated in Figure 12 is substantially interchangeable with the mortice lock assembly 2 as illustrated in Figure 1, insofar as it is suitable for use with the same or similar inner door furniture 3 and outer door furniture 4. However, it ought to be appreciated that the depth of the mortice cavity 6 formed in the door could be reduced, and the openings formed in the inner side of the door 7 and outer side of the door would need to be located closer to the front edge of the door.

[0047] The mortice lock assembly illustrated in Figure 2 includes in summary a latchbolt assembly 33, an auxiliary bolt assembly 39, a dead latch mechanism, a slide detent 56, an actuator, an inner pawl 57 and an outer pawl 58, and an adjuster 27. Whilst most of the features operate in a manner similar to that as described with reference to the standard back set mortice lock assembly illustrated in Figure 2, it can be appreciated from Figure 13 that the actuator 18 is slightly different. More specifically, Figure 13 illustrates the inner hub 57 and an outer hub 58 which are

formed separately from the actuator arm 50. Each of the inner hub 48 and outer hub 49 are independently rotatable to drive the actuator arm 50, which in turn interacts with the latchbolt assembly 33. It can also be noted from Figure 13 that the inner follower 62 and outer follower 63 are substantially shorter in length in order that they can fit in the relatively confined environment of the short back set housing 5 (see Figure 12).

[0048] The manner in which the short back set mortice lock assembly 2 operates, or more specifically how the adjuster alters the rotational position of the inner pawl 57 will be described in greater detail by reference to Figures 14, 15 and 16. Referring firstly to Figure 14 which illustrates the inner pawl 57 in a release position so as to permit the inner hub 48 to rotate about the actuator axis XX. Whilst the inner pawl remains in a release position, rotation of the cam 21 associated with the outer cylinder lock 14 (see Figure 12) causes the slide detent 56 to move down and engage with the inner pawl 57. The foot end 60 of the slide detent 56 slides over the upper surface of the pawl so as to cause the inner pawl 57 to rotate about the pawl shaft 61 as illustrated in Figure 15. Once the inner pawl adopts the latch condition illustrated in Figure 15, the inner hub 48 is prevented from rotation about the actuator axis XX. It can be appreciated by comparing Figures 15 and 14 that the cam 28 of the adjuster 27 remains in the same rotational position whilst the head 65 of the inner follower 62 moves relative to the cam 28. This aligns the lobe 73 on the head 65 with the radial projection 72 (see Figure 14) on the cam 28 so that whilst the inner pawl 57 is in a latched position rotation of the cam 28 is prevented.

[0049] Comparing now Figures 14 and 16, it can be appreciated that by rotation of the cam 28 about the cam axis CC, it permits the inner follower 62 to project towards the front wall 25 of the housing 5 (see Figure 12), rotating the inner pawl 57 towards the deactivated position. When the inner pawl 57 is in the deactivated position, the slide detent 56 is prevented from interacting with the inner pawl 57. More specifically, the inner pawl 57 is prevented from being moved to the latch position regardless of the position of the slide detent 56. This allows the inner lever handle 9 to retract the latchbolt assembly regardless of the condition of the lock means 55.

[0050] It ought to be appreciated from the foregoing that the mortice lock assembly 2 incorporating the invention provides a relatively simple mechanism for adjusting the position of the inner or outer cam from the front of the housing.

[0051] Various alterations and/or additions may be introduced to the mortice lock assembly as hereinbefore described without departing from the spirit or ambit of the invention.

[0052] Future patent applications may be filed in Australia or overseas on the basis of or claiming priority from the present application. It is to be understood that the following provisional claims are provided by way of example only, and are not intended to limit the scope of what may be claimed in any such future application. Features may be added to or omitted from the provisional claims at a later date so as to further define or re-define the invention.

THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:

1. A mortice lock assembly for installation in a door including, a housing, a bolt movable relative to a front of the housing between an extended position and a retracted portion, an actuator including an inner hub and an outer hub that in use are rotatable from an inner side and an outer side of the door respectively to move the bolt from the extended position towards the retracted position, a lock means including a slide detent that is movable relative to the housing, an inner pawl and outer pawl that interacts with the slide detent for adjusting between a release position and a latched position relative to the inner hub and outer hub respectively so that in the latched position the respective inner hub or outer hub is prevented from rotating, an adjuster including a cam that is rotatable proximate the front of the housing and a cam detent means for interacting with the cam to facilitate retaining the cam in one of a plurality of selected positions, the adjuster including an inner follower and an outer follower each interacting between the cam, the inner pawl and outer pawl respectively, whereby the adjuster is operable to adjust the inner pawl and/or outer pawl between the release position and a deactivated position so as to permit or prevent respectively said interaction of the inner pawl and/or outer pawl with the slide detent.
2. A mortice lock assembly according to claim 1 wherein the adjuster includes biasing means for biasing the inner follower and outer follower towards the cam.
3. A mortice lock assembly according to claim 1 or 2 wherein the cam includes a cam surface whereby the inner follower and or outer follower engages the cam surface when their respective inner pawl and/or outer pawl are in the release condition or the deactivated condition.
4. A mortice lock assembly according to claim 3 wherein the inner follower and/or outer follower disengage from the cam surface when their respective inner pawl and/or outer pawl are in the latch condition.
5. A mortice lock assembly according to claim 3 or 4 wherein the cam rotates about a cam axis which is substantially aligned with a direction in which the bolt moves, and the cam surface extends radially from the cam axis.

6. A mortice lock assembly according to any one of the preceding claims wherein when the inner pawl and/or outer pawl is retained in the latched position by the lock means the respective inner follower and/or outer follower interacts with the cam to prevent its operation.
7. A mortice lock assembly according to claim 6 wherein the inner follower and outer follower each include a tab that interacts with a formation of the cam to prevent rotation of the cam when the respective inner pawl and/or outer pawl is in the latch condition.
8. A mortice lock assembly according to claim 7 wherein the formation on the cam includes a plurality of lugs projecting radially from the cam which align with and abut the tab of the inner follower or outer follower so as to prevent rotation.
9. A mortice lock assembly according to any one of the preceding claims wherein the detent slide moves linearly relative to the housing when adjusting the inner pawl and/or outer pawl between the latch position and the release position.
10. A mortice lock assembly according to claim 9 wherein the detent slide is spaced from the inner pawl and/or outer pawl when in the release position.
11. A mortice lock assembly according to claim 9 or 10 wherein the inner pawl and the outer pawl include an engaging surface configured to facilitate the detent slide sliding over the inner pawl and/or outer pawl when adjusting between the release condition and the latch condition.
12. A mortice lock assembly according to claim 11 wherein the engaging surface of the inner pawl and the outer pawl is a ramp surface that is substantially aligned transverse to a direction in which the detent slide moves.
13. A mortice lock assembly according to any one of the preceding claims wherein the cam detent means includes a ball and the cam is formed with a plurality of recesses that interact with the ball to retain the cam in the selected position.
14. A mortice lock assembly according to claim 13 wherein the cam includes four recesses which are at 90° spacing's around a periphery of the cam.