A Gate With Keyless Lock Attachment

Field of the Invention

This invention relates to a keyless lock attachment. Particularly, this invention relates to a keyless lock attachment adaptable to existing locksets for use on metal gates. More particularly, this invention relates to a keyless lock attachment adaptable to existing locksets for use on metal gates with certain configuration.

Prior Art

In 2012, there was an article reporting of a dweller trapped within the home behind their own locked entrance metal gate during a fire incident. The entrance gates are typically perforated steel gates that allow ventilation and natural lights into the dwelling units. These gates are commonly provided with conventional lock sets such as mortise locksets, latch lock and deadbolt lock combination or a latch lock with a separate padlock over a locking eye provided on the gates. As such locking method requires key to unlock the gate, it may be problematic to the dwellers during time of emergency to locate the keys.

Hence, those skilled in the art are striving to provide a gate that allows ventilation and natural lights into the dwelling units, and enhances privacy without compromising safety and improve security from intruders while allowing easy escape from the unit.

Summary of the Invention

The above and other problems are solved and an advance in the art is made by a keyless lock attachment and gate configuration in accordance with this invention. A first advantage of the keyless lock attachment in accordance with this invention is that the keyless lock attachment can be installed on existing lockset. Hence, there is no need to replace the gate and lockset in order to use the keyless lock attachment. A second

advantage of the keyless lock attachment in accordance with this invention is that the keyless lock attachment allows a dweller the option of fully locking the gate such that intruder is unable to open the gate even if the intruder has obtained the key to unlock the lockset from outside the gate. A third advantage of the keyless lock attachment in combination with the gate configuration in accordance with this invention is that the gate with grilles allow ventilation and natural light to enter the residential unit without compromising safety and improve security from intruders while allowing easy escape from the unit. This is because the grilles configuration prevents intruders from accessing the keyless lock attachment from outside the gate.

A first aspect of the disclosure describes a keyless lock attachment for installing on a lockset on a gate. The keyless lock attachment comprises a housing. The keyless lock attachment further comprises a spindle insert defined within the housing and adaptable to be fixedly coupled a spindle of the lockset; and a lock mechanism provided on the housing and configured to lock the housing against the gate preventing the housing from moving.

In accordance with an embodiment of the first aspect, the lock mechanism comprises: an actuator and a rod, the actuator being coupled proximate to a first end of the rod and extend through an opening of a side wall of the housing, and the rod extends from the actuator to a rear surface of the housing, the through opening of the side wall of the housing has a length such that actuator is movable within the length of the through opening such that moving the actuator towards a front surface of the housing causes the rod to be retracted to a position where a second end of the rod, which is opposite the first end of the rod, is at least flushed with the rear surface; and moving the actuator towards the rear surface causes the rod to be extended to a position where the rod extends out of the rear surface and enters an aperture provided on the gate.

In accordance with an embodiment of the first aspect, the lock mechanism comprises: a rod comprising a first part and a second part connected by a resilient means

and adapted to be movable between a retracted position where the second part is flushed with a rear surface of the housing and an extended position where the second part extends out of the rear surface of the housing and enters an aperture provided on the gate; a stopper configured to abut a pointed tip of the resilient means when in the extended position preventing the second part of the rod from urging the second part towards a front surface of the housing; and a release button configured to move the pointed tip of the resilient means out of the stopper.

In accordance with an embodiment of the first aspect, the second part of the rod is a spring loaded rod configured to urge the second part towards the front surface.

In accordance with an embodiment of the first aspect, the stopper is provided adjacent to the release button.

In accordance with an embodiment of the first aspect, the side wall has a plurality of grooves.

In accordance with an embodiment of the first aspect, the side wall has a plurality of rounded grooves.

In accordance with an embodiment of the first aspect, the spindle insert has a 16 pointed star cross section.

In accordance with an embodiment of the first aspect, a cross section of the housing has a diameter of between 45 millimeters and 55 millimeters.

A second aspect of the disclosure describes a gate comprising a frame with grilles having a lockset with the keyless lock attachment according to the first aspect of the disclosure. The keyless lock attachment is fixedly coupled to the lockset on a first side of the frame. The frame has a first region and a second region where the first region of the frame comprises the keyless lock attachment and has grilles with dimension of openings being smaller than the dimension of the grilles in the second region.

In accordance with an embodiment of the second aspect, the dimension of openings of the grilles in the first region is less than 3 centimeters.

In accordance with an embodiment of the second aspect, the first region has a ~~perimeter~~ peripheral boundary that is at least 40 centimeters apart from the keyless lock attachment.

In accordance with an embodiment of the second aspect, the dimension of openings of the grilles in the second region is less than 4 centimeters.

In accordance with an embodiment of the second aspect, the second region has a peripheral boundary ~~perimeter~~ that is at least 20 centimeters apart from the peripheral boundary ~~perimeter~~ of the first region.

In accordance with an embodiment of the second aspect, the frame further comprises a third region having a peripheral boundary ~~perimeter~~ that is at least 20 centimeters apart from the peripheral boundary ~~perimeter~~ of the second region.

In accordance with an embodiment of the second aspect, the dimension of openings of the grilles in the third region is less than 5 centimeters.

Brief Description of the Drawings

The above and other features and advantages in accordance with this invention are described in the following detailed description and are shown in the following drawings:

Figure 1 illustrating a front view and a rear view of a gate in accordance with an embodiment of this disclosure;

Figure 2 illustrating a top view of the gate in accordance with an embodiment of this disclosure;

Figure 3 illustrating a side view of a part of the gate showing a knob installed to the lockset in accordance with an embodiment of this disclosure;

Figure 4 illustrating an exploded perspective view of the knob and the lockset in accordance with an embodiment of this disclosure;

Figure 5 illustrating a rear perspective view of the knob in accordance with an embodiment of this disclosure;

Figure 6 illustrating a front surface and a rear surface of the knob in accordance with an embodiment of this disclosure;

Figure 7 illustrating alternative configuration of the grooves being defined on the sidewall in accordance with an embodiment of this disclosure;

Figure 8 illustrating another alternative configuration of the grooves being defined on the sidewall in accordance with an embodiment of this disclosure;

Figure 9 illustrating cross section views of the spindle insert in accordance with an embodiment of this disclosure;

Figure 10 illustrating the movement of the lock mechanism of the knob in accordance with an embodiment of this disclosure;

Figure 11 illustrating a front perspective view of an alternative lock mechanism in accordance with an embodiment of this disclosure;

Figure 12 illustrating a front view and a rear view of the alternative lock mechanism in accordance with an embodiment of this disclosure;

Figure 13 illustrating the movement of the alternative lock mechanism of the knob in accordance with an embodiment of this disclosure;

Figure 14 illustrating a first type of grille gate in accordance with an embodiment of this disclosure; and

Figure 15 illustrating a second type of grille gate in accordance with an embodiment of this disclosure.

Detailed Description

This invention relates to a keyless lock attachment. Particularly, this invention relates to a keyless lock attachment adaptable to existing locksets for use on metal gates.

More particularly, this invention relates to a keyless lock attachment adaptable to existing locksets for use on metal gates with certain configuration.

It is envisioned that a keyless lock attachment is provided that is adaptable to be used on any existing locksets. The keyless lock attachment is preferably installed on a grille gate with certain configuration to enhance security while allowing ventilation and natural light to enter the home of the dweller.

Figure 1 shows a gate 100 in accordance with an embodiment of this disclosure where reference number 110 shows a view from a first side of the gate 100 and reference number 120 shows a view from a second side of gate 100. Figure 2 shows a top view of the gate 100. The gate 100 is typically installed to the entrance of a residential unit with the first side of the gate 100 facing outside the residential unit and the second side of the gate 100 facing inside the residential unit. It should be noted that for privacy, a main entrance door may also be installed at the entrance of the residential unit. The gate 100 includes a frame 280 with grilles. As shown in figure 1, the openings of the grilles are non-uniform. The location of an eye viewer on the main entrance door is fixed and the vision from the eye viewer should not be blocked by the gate 100. This means that the openings of the grilles should factor in the location of the eye viewer on the main entrance door. The gate 100 includes a lockset 250 for locking and unlocking the gate 100. The lockset 250 may be a deadbolt lockset, a mortise lockset, a latchbolt lockset, a deadbolt and latch lockset combination, or other conventional lockset for locking the grille gate 100. The lockset 250 includes at least a handle 251 installed on the first side of the gate, lockset mechanism for retracting and extending a deadbolt 254 and/or latch 253 to respective apertures 259. On the inside of the gate 100, a knob 200 in accordance with an embodiment of this disclosure is provided to the lockset 250. The knob 200 is coupled to the spindle 252 of the lockset 250. The knob 200 includes a locking mechanism 210 for locking the knob 200 against the frame of the gate 100. More details of the configuration of the grilles 280 provided to the gate 100 and the knob 200 will be described below. We

will first discuss the knob 200 followed by the grilles 280. The knob 200 is essentially the keyless lock attachment.

Figure 3 illustrates a side view of a part of the gate 100 showing the knob 200 installed to the lockset 250. As shown in figure 3, the lockset 250 includes a handle 251 for actuating the latch 253 and a key insert for actuating the deadbolt 254. The spindle 252 comprises two rods having a non-rounded cross section. Typically, the cross section of the rod is square in shape. The two rods are relatively rotatable to each other by means of respective coaxial threadable interconnection. Lockset 250 is any conventional lockset, which is known in the art, and further details of the lockset 250 are omitted for brevity. More importantly, the knob 200 is provided to the lockset 250 in replacement of the handle or knob to be installed on the inside of the gate.

Figure 4 illustrates the exploded perspective view of the knob 200 and the lockset 250. Figure 5 illustrates the rear perspective view of the knob 200. As shown in figure 4, an aperture 260 is provided on frame of the gate 100. The lock mechanism of the lockset 250 is installed in the frame of the gate 100 with only part of the spindle 252, handle 251, latch 253 and deadbolt 254 being exposed from the frame of the gate 100. The knob 200 includes a housing 201 having a front surface 231, a rear surface 232, a side wall 230, a lock mechanism 210 and a spindle insert 220.

As shown in figure 4, the rod of the spindle 252 has a square cross section. The knob 200 includes a spindle insert 220 with a corresponding shape to allow insertion of the rod of the spindle 252. Specifically and as shown on the left of figure 9, the spindle insert 220 has a square cross section to allow insertion of the rod of the spindle 252. The right of figure 9 shows an alternative embodiment where the spindle insert 220 has a 16 pointed star cross section to provide flexibility in allowing insertion of the rod of the spindle 252. The knob 200 includes a through aperture on the front surface 231 to allow a screw 300 to screw into a threaded opening 2521 of the rod of the spindle 252 to secure the knob 200 to the lockset 250. One skilled in the art will recognise that other means of

securing the knob 200 to the rod of the spindle 252 may be provided without departing from the disclosure. For example, the spindle insert 220 may be provided with frictional surface such that force insertion of the spindle insert 220 to the rod of the spindle 252 will increase the grip between the wall of the spindle insert 220 and the outer surface of rod of the spindle 252 preventing the knob 200 from being easily detached from the lockset 250.

Figure 6 illustrates a front surface and a rear surface of the knob 200. Specifically, on the left of figure 6 illustrates the front surface of the knob 200 while the right of figure 6 illustrates the rear surface of the knob 200. The lock mechanism 210 includes an actuator 211 and a rod 212. The actuator 211 is coupled proximate to a first end of the rod 212 and extends through a through opening 237 of the sidewall 230 of the housing. The rod 212 extends from the actuator 211 to the rear surface 232. The through opening 237 has a length such that actuator 211 is movable therein. Specifically, the actuator 211 is moveable within the length of the through opening 237 such that moving the actuator 211 towards the front surface 231 causes the rod 212 to be retracted to a position where a second end of the rod 212, which is opposite the first end of the rod 212, is at least flushed with the rear surface 232; and moving the actuator 211 towards the rear surface 232 causes the rod 212 to be extended to a position where the rod 212 extends out of the rear surface 232 and enters the aperture 260. The movement of the lock mechanism 210 will be described in further details below with reference to figure 10.

Grooves 610 are defined on the sidewall 230 to facilitate turning of the knob 200. As shown in figures 4-6, the knob 200 has 4 grooves 610. In another embodiment, more than 4 grooves 610 may be provided as shown in figure 7. Further, rounded grooves 610 are provided as shown in figure 8 to facilitate turning of the knob 200 to prevent cutting a user’s hand while providing extra grip.

In one embodiment, the knob 200 has a diameter of 45-55mm and is made of stainless steel. A research has been conducted to determine an optimum diameter of the

knob and the results from the research indicated that the optimum diameter of the knob is between 45mm and 55mm.

We now turn to figure 10 to illustrate the movement of the lock mechanism 210. The top of figure 10 shows the lock mechanism 210 in the retracted position. In the retracted position, the actuator 211 abuts one end of the length of the through opening 237 and the second end of the rod 212 is flushed with the rear surface 232. The bottom of the figure 10 shows the lock mechanism 210 in the extended position. In the extended position, the actuator 211 abuts the opposing end of the length of the through opening 237 and the second end of the rod 212 extends out of the rear surface 232 and into the aperture 260. In the extended position, the knob 200 is immobile and cannot be turned as the rod 212 which extends into the aperture 260 prevents any movement of the knob 200.

The lock mechanism 210 as shown in figures 4-6 and 10 may also be called a sliding rod mechanism. Specifically, sliding the actuator 211 between the two ends of the length of the through opening 237 causes the rod 212 to move between the retracted position and extended position. In this manner, the dweller in the residential unit can opt to fully lock the gate preventing anyone from the outside with a relevant key to unlock the deadbolt and actuate the handle 251 to open the gate.

Figures 11-13 illustrate another embodiment of the lock mechanism 210. In this embodiment, the lock mechanism 210 is a spring loaded lock. The lock mechanism in this embodiment includes a rod 1111 and a release button 1112. The rod 1111 comprises two parts connected by a resilient means 1113. A first part of the rod 1111A is provided on the front side extending to the front surface 231 while the second part of the rod 1111B is provided on the rear side extending to the rear surface 232. The second part of the rod 1111B is a spring loaded rod 1116 that urges the second part 1111B towards the front surface 231 such that one end of the second part of the rod 1111B is at least flushed with the rear surface 232 as shown at the top of figure 13. The top of figure 13 shows the lock mechanism 210 in the retracted position. The first part of the rod 1111A extends through

an opening of the front surface 231 when in the retracted position. The rod 1111 has a length that is longer than length between the front surface 231 and the rear surface 232. A stopper 1115 is provided adjacent to the release button 1112. The resilient means 1113 is configured to act similar to a latch such that when a force is applied to the first part of the rod 1111A as shown by arrow 1310, the resilient means 1113 slides over the stopper 1113 until a pointed tip of the resilient means 1113 crosses the stopper 1113. Releasing the force applied to the first part of the rod 1111A thereafter, causes the pointed tip of the resilient means to abut the stopper 1115 preventing the second part of the rod 1111B from urging the second part 1111B towards the front surface 231. In this extended position, the second part of the rod 1111B extends into the aperture 260 and the release button 1112 is raised, i.e. moves slightly apart from the sidewall 230. In the extended position which is shown on the bottom of figure 13, the knob 200 is immobile and cannot be turned as the second part of the rod 1111B that extends into the aperture 260 prevents any movement of the knob 200. By subsequently depressing the release button 1112, the pointed tip of the resilient means 1113 slides out of the stopper 1115 and the spring loaded rod 1116 urges the second part 1111B towards the front surface 231 returning the lock mechanism 210 back to the retracted position as shown on the top of figure 13.

In short, the lock mechanism 210 locks the knob 200 against the gate 100, preventing the lockset from being able to be open from the outside.

As the gate 110 has grilles 280, it is important that the openings of the grilles 280 are provided accordingly so that one is unable to reach the knob 200 from outside the gate 100.

Figure 14 illustrates a first type of grille gate 281. The first type of grille gate 281 comprises 2 parts to form a gate where the lockset 250 together with the knob 200 are installed on a first part 2811 while the second part 2812 includes the corresponding aperture to receive the deadbolt and/or latch of the lockset 250. The first part 2811 would

also include the aperture 260. Typically, one part is smaller than the other part in the first type of gate 283 as shown in figure 14. In this first type of grille gate 281, there includes a first region 281A, a second region 281B and a third region 281B. For clearer illustration, bottom of figure 14 illustrates the first type of grille gate 281 without the grilles to show the three regions. The first region 281A has a peripheral boundary ~~perimeter~~ that is apart from the knob 200 by a first predetermined distance 282A. Preferably, the first predetermined distance 282A is at least 40cm. The dimension of the opening in the first region 281A is no more than 3cm. This is to prevent access to the knob 200 from the outside since it does not require key to open it from the inside. More specifically, this prevents intruder's palm from going through the grilles in the first region 281A.

One skilled in the art will recognise that while top of figure 14 shows the openings in the first region 281A to have the same uniform dimension, the openings in the first region 281A need not have the same uniform dimension as long as the opening is no larger than 3cm or 30mm. For the avoidance of doubt, it is possible that no opening is provided in the first region 281A.

The second region 281B has a peripheral boundary ~~perimeter~~ that is apart from the peripheral boundary ~~perimeter~~ of the first region 281A by a second predetermined distance 282B. Preferably, the second predetermined distance 282B is at least 20cm. The dimension of the openings in the second region 281B is no more than 4cm. This is to prevent access to the knob 200 from the outside since it does not require key to open it from the inside. More specifically, this prevents intruder's palm and elbow from going through the grilles in the second region 281B.

One skilled in the art will recognise that while top of figure 14 shows the openings in the second region 281B to have two dimensions, the dimension of the openings in the second region 281B may instead be uniformly provided or otherwise as long as the opening is no larger than 4cm or 40mm.

The third region 281C has a peripheral boundary ~~perimeter~~ that is apart from the peripheral boundary ~~perimeter~~ of the second region 281B by a third predetermined distance 282C. Preferably, the third predetermined distance 282C is at least 20cm. The dimension of the openings in the third region 281C is no more than 5cm. This is to prevent access to the knob 200 from the outside since it does not require key to open it from the inside. More specifically, this prevents intruder's entire arm from going through the grilles in the third region 281C. As the average length of an arm of an adult is about 60-70cm, the sum of the first, second and third predetermined distances of 80cm would ensure that an intruder would not be able to access the knob 200 from outside even if the openings in the region extending beyond the third region is larger than 5cm.

One skilled in the art will recognise that while top of figure 14 shows the openings in the third region 281C to have two dimensions, the dimension of the openings in the third region 281C may instead be uniformly provided or otherwise as long as the opening is no larger than 5cm or 50mm.

Further, while top of figure 14 shows the openings in the region extending beyond the third region 281C to share the same dimension as the openings in some parts of the third region 281C, one skilled in the art will recognise that other dimensions may be applied without departing from the disclosure.

Figure 15 illustrates a second type of grille gate 283. The second type of grille gate 283 is a one piece grille gate where the lockset 250 together with the knob 200 are installed on the one piece grille gate while the corresponding aperture to receive the deadbolt and/or latch of the lockset 250 are provided on the frame of the entrance. In this second type of grille gate 283, there includes a first region 283A, a second region 283B and a third region 283B. For clearer illustration, bottom of figure 15 illustrates the second type of grille gate 283 without the grilles to show the three regions. The first region 283A has a peripheral boundary ~~perimeter~~ that is apart from the knob 200 by a first predetermined distance 284A. Preferably, the first predetermined distance 284A is at

least 40cm. The dimension of the opening in the first region 283A is no more than 3cm. This is to prevent access to the knob 200 from the outside since it does not require key to open it from the inside. More specifically, this prevents intruder's palm from going through the grilles in the first region 283A.

One skilled in the art will recognise that while top of figure 15 shows the openings in the first region 283A to have the same uniform dimension, the openings in the first region 283A need not have the same uniform dimension as long as the opening is no larger than 3cm or 30mm. For the avoidance of doubt, it is possible that no opening is provided in the first region 283A.

The second region 283B has a peripheral boundary ~~perimeter~~ that is apart from the peripheral boundary ~~perimeter~~ of the first region 283A by a second predetermined distance 284B. Preferably, the second predetermined distance 284B is at least 20cm. The dimension of the openings in the second region 283B is no more than 4cm. This is to prevent access to the knob 200 from the outside since it does not require key to open it from the inside. More specifically, this prevents intruder's palm and elbow from going through the grilles in the second region 283B.

One skilled in the art will recognise that while top of figure 15 shows the openings in the second region 283B to have two dimensions, the dimension of the openings in the second region 283B may instead be uniformly provided or otherwise as long as the opening is no larger than 4cm or 40mm.

The third region 283C has a peripheral boundary ~~perimeter~~ that is apart from the peripheral boundary ~~perimeter~~ of the second region 283B by a third predetermined distance 284C. Preferably, the third predetermined distance 284C is at least 20cm. The dimension of the openings in the third region 283C is no more than 5cm. This is to prevent access to the knob 200 from the outside since it does not require key to open it from the inside. More specifically, this prevents intruder's entire arm from going through the grilles in the third region 283C. As the average length of an arm of an adult is about

60-70cm, the sum of the first, second and third predetermined distances of 80cm would ensure that an intruder would not be able to access the knob 200 from outside even if the openings in the region extending beyond the third region 283C is larger than 5cm.

One skilled in the art will recognise that while top of figure 15 shows the openings in the third region 283C to have two dimensions, the dimension of the openings in the third region 283C may instead be uniformly provided or otherwise as long as the opening is no larger than 5cm or 50mm.

Further, while top of figure 15 shows the openings in the region extending beyond the third region 283C to share the same dimension as the openings in some parts of the third region 283C, one skilled in the art will recognise that other dimensions may be applied without departing from the disclosure

The grilles are essentially steel plate that is about 4mm thick flat plate with laser cutting to form the grilles and with hammered texture paint finish. One skilled in the art will recognise that other methods of manufacturing the grille gates may be implemented without departing from the disclosure.

We now describe a process for installing and using the knob and gate in accordance with an embodiment of this disclosure. The entire gate with lockset 250 is manufactured in a factory. The gate 100 with lockset 250 is then sent to the residential unit for installation. It should be noted that the lockset 250 is installed onto the gate 100 with the spindle 252 on the inside of the gate. The gate is then installed to the entrance of the residential unit with the spindle 252 of the gate facing the residential unit. The installer has to activate the lockset to the lock position where the deadbolt extends into the corresponding aperture. The knob 200 is then aligned to the aperture 260 provided on the gate 100 and subsequently secured to the spindle 252. Specifically, the rod of the lock mechanism of the knob 200 is aligned to the aperture 260. The installation is now complete.

For installing the knob 200 to existing lockset, the installer has to first remove the handle or knob of the lockset installed at the inside of the gate. Next, the installer has to mark the location of the aperture 260 on the gate. This can be done by printing an image of the rear surface 232 of the knob 200. The image of the spindle insert is then inserted through the rod of the spindle of the lockset. Thereafter, the image is rotated to the lock position and fixed to the gate. The installer can then drill a hole through the image of the rod 212 to form the aperture 260. The installer will now activate the lockset to the lock position where the deadbolt extends into the corresponding aperture. The rod of the lock mechanism of the knob 200 is then aligned to the aperture 260 and subsequently secured to the spindle 252. The installation is now complete.

Assuming the lockset is now in the lock position where the deadbolt extends into the corresponding aperture, rotating the knob 200 in a first direction first retracts the deadbolt 254 and subsequently retracts the latch 253, allowing the gate to be moveable. Now, rotating the knob 200 in a second direction, opposing the first direction, extends the deadbolt 254. In this extended position, the rod of the lock mechanism of the knob 200 is aligned to the aperture 260 and the user can now activate the lock mechanism to lock the knob 200 to the gate 100. The rod of the lock mechanism of the knob 200 can only be inserted into the aperture 260 at the extended position. This is to ensure any new users or residents do not need to guess whether the rod of the lock mechanism has been aligned to the aperture 260. Users and residents only need to turn it all the way to the end until the knob 200 cannot turn any more, which is in the extended position.

The above is a description of exemplary embodiments of a keyless knob attachment and gate configuration for installation at the entrance of a residential premise in accordance with this disclosure. It is foreseeable that those skilled in the art can and will design alternative systems and methods based on this disclosure.

Claims

1. A keyless lock attachment for installing on a lockset on a gate comprising:

a housing;

a spindle insert defined within the housing and ~~adaptable to be fixedly coupled~~ fixedly couplable to a spindle of the lockset; and

a lock mechanism provided on the housing, ~~and configured~~ the lock mechanism comprising a movable rod receivable in an aperture provided on the gate to lock the housing against the gate preventing the housing from moving.

2. The keyless lock attachment according to claim 1 wherein the lock mechanism further comprises:

an actuator ~~and a rod~~, the actuator being coupled proximate to a first end of the rod and extend through ~~an~~ a through opening of a side wall of the housing, and the rod extends from the actuator to a rear surface of the housing, the through opening of the side wall of the housing has a length such that the actuator is movable within the length of the through opening such that moving the actuator towards a front surface of the housing causes the rod to be retracted to a position where a second end of the rod, which is opposite the first end of the rod, is at least flushed with the rear surface; and moving the actuator towards the rear surface causes the rod to be extended to a position where the rod extends out of the rear surface and ~~enters~~ receivable in the ~~an~~ aperture provided on the gate.

3. The keyless lock attachment according to claim 1 wherein the lock mechanism further comprises:

a resilient means connecting a first part and second part of the rod, ~~a~~ the rod ~~comprising a first part and a second part connected by a resilient means and~~ adapted to

be movable between a retracted position where the second part is flushed with a rear surface of the housing and an extended position where the second part extends out of the rear surface of the housing and ~~enters~~ receivable in the ~~an~~ aperture provided on the gate;

a stopper configured to abut a pointed tip of the resilient means when in the extended position preventing the second part of the rod from urging the second part towards a front surface of the housing; and

a release button configured to move the pointed tip of the resilient means out of the stopper.

4. The keyless lock attachment according to claim 3 wherein the second part of the rod is a spring loaded rod configured to urge the second part towards the front surface.

5. The keyless lock attachment according to claim 4 wherein the stopper is provided adjacent to the release button.

6. The keyless lock attachment according to claim ~~1~~ 2 wherein the side wall has a plurality of grooves.

7. The keyless lock attachment according to claim ~~1~~ 2 wherein the side wall has a plurality of rounded grooves.

8. The keyless lock attachment according to ~~claim 1~~any one of the preceding claims wherein the spindle insert has a 16 pointed star cross section.

9. The keyless lock attachment according to ~~claim 1~~any one of the preceding claims wherein a cross section of the housing has a diameter of between 45 millimeters and 55 millimeters.

10. A gate comprising:

a frame with grilles having a lockset with the keyless lock attachment according to any one of ~~claims 1-6~~ the preceding claims, the keyless lock attachment being fixedly coupled to the lockset on a first side of the frame, the frame having a first region and a second region where the first region of the frame comprising the keyless lock attachment has grilles with a dimension of openings being smaller than ~~the~~ a dimension of openings of the grilles in the second region.

11. The gate according to claim 10 wherein the dimension of openings of the grilles in the first region is less than 3 centimeters.

12. The gate according to claim 10 wherein the first region has a ~~perimeter~~ peripheral boundary that is at least 40 centimeters apart from the keyless lock attachment.

13. The gate according to claim 12 wherein the dimension of openings of the grilles in the second region is less than 4 centimeters.

14. The gate according to claim 13 wherein the second region has a ~~perimeter~~ peripheral boundary that is at least 20 centimeters apart from the ~~perimeter~~ peripheral boundary of the first region.

15. The gate according to claim 14 wherein the frame further comprises a third region having a ~~perimeter~~ peripheral boundary that is at least 20 centimeters apart from the ~~perimeter~~ peripheral boundary of the second region.

16. The gate according to claim 15 wherein ~~the~~ a dimension of openings of the grilles in the third region is less than 5 centimeters.