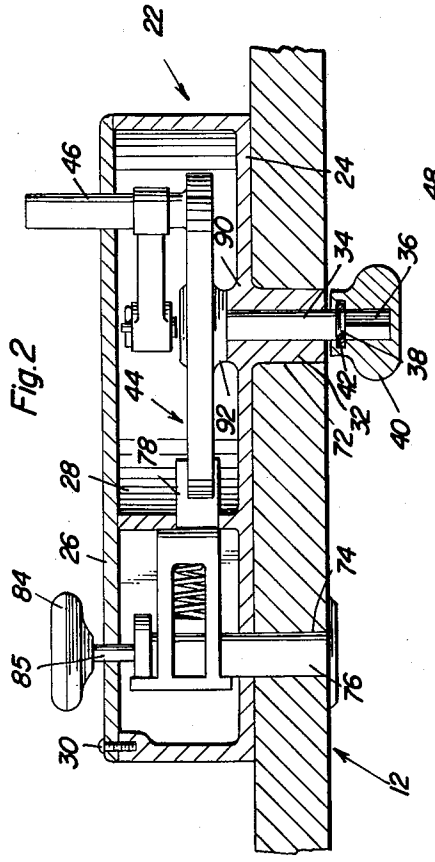
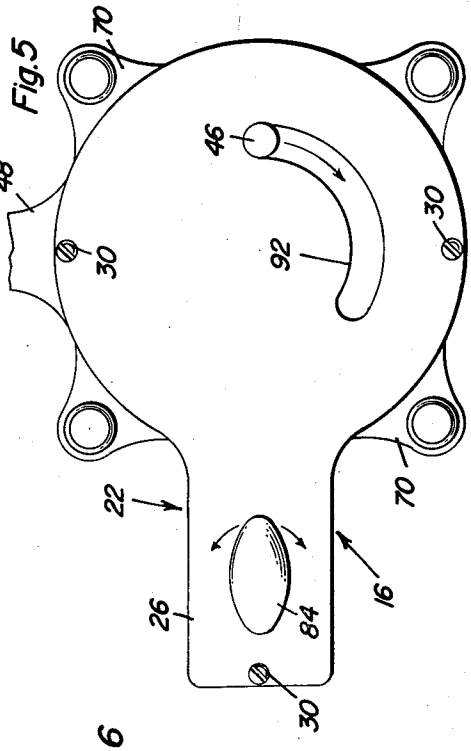
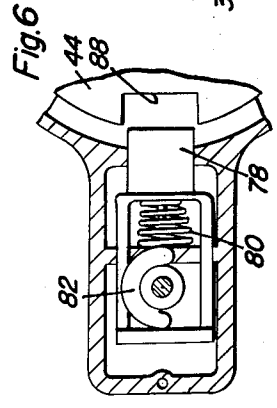
Jan. 15, 1963 R. PAPANTI 3,073,144

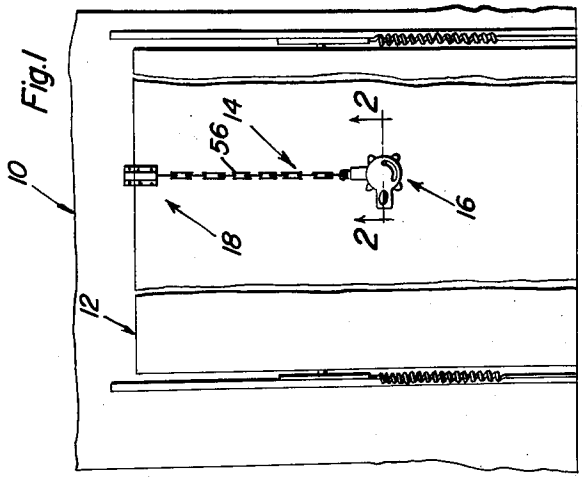
DOOR LOCK

Filed Jan. 6, 1961 2 Sheets-Sheet 1




Ralph Papanti
INVENTOR.

BY Clarence A. O'Brien and Harvey B. Jacobson
Attorneys

Jan. 15, 1963 R. PAPANTI 3,073,144

DOOR LOCK

Filed Jan. 6, 1961 2 Sheets-Sheet 2

Fig. 3

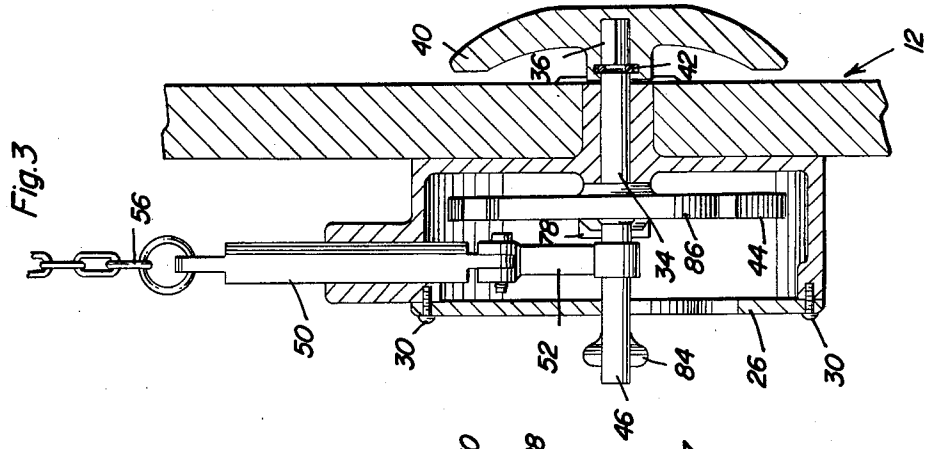
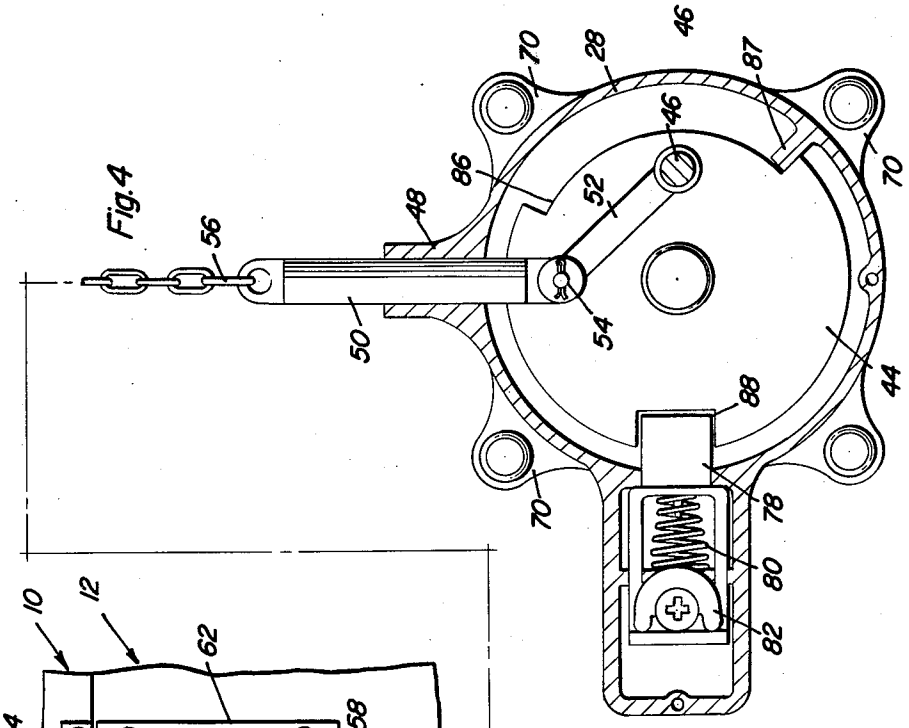
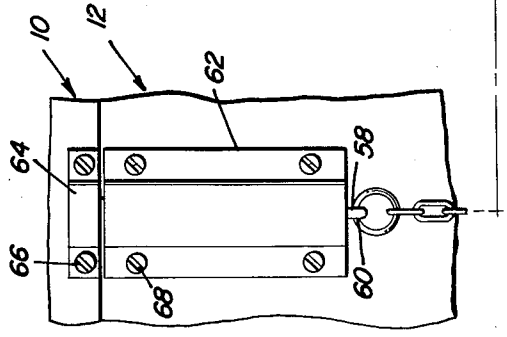



Fig. 4




Ralph Papanti

INVENTOR.

BY Clarence A. O'Brien and Harvey B. Jacobson

Attorneys

United States Patent Office 3,073,144 Patented Jan. 15, 1963



3,073,144

# DOOR LOCK

Ralph Papanti, 17060 Wyandotte St., Van Nuys, Calif.

Filed Jan. 6, 1961, Ser. No. 81,164
4 Claims. (Cl. 70—211)

This invention relates to a novel and useful lock and latch mechanism for operating a remote latch.

Several types of doors including garage doors are provided with lock and latch mechanisms for operating a latch element remotely positioned relative to the lock and latch mechanism. The subject of the instant invention is an improvement over existing lock and latch mechanisms of this type and is designed for use on a door and to enable a door to be opened from one side thereof by merely operating a crank and from the other side thereof only by means of a key. The lock and latch mechanism of the instant invention is particularly well adapted for use with garage doors and may also be used in other environments.

The main object of this invention is to provide a lock and latch mechanism for garage doors which may be utilized to operate a remote latch positioned at the upper edge of the door.

A further object of this invention, in accordance with the immediately preceding object, is to provide a lock and latch mechanism for a door which may be actuated from one side of the door without the use of a key and which must be actuated in conjunction with a key from the other side of the door.

A still further object of this invention is to provide a lock and latch mechanism in accordance with the preceding objects which will be readily adaptable to mounting on substantially all types of garage doors.

A final object to be specifically enumerated herein is to provide a lock and latch mechanism for operating a remote latch which will conform to conventional forms of manufacture, be of simple construction and easy to operate so as to provide a device that will be economically feasible, long lasting and relatively trouble free in operation.

These together with other objects and advantages which will become subsequently apparent reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming a part hereof, wherein like numerals refer to like parts throughout, and in which:

FIGURE 1 is a fragmentary side elevational view of a wall of a garage having a garage door mounted therein and showing the lock and latch mechanism of the instant invention mounted on the garage door;

FIGURE 2 is an enlarged fragmentary horizontal sectional view taken substantially upon the plane indicated by the section line 2—2 of FIGURE 1;

FIGURE 3 is an enlarged fragmentary vertical sectional view taken upon a plane passing substantially through the center of the lock and latch mechanism illustrated in FIGURE 1;

FIGURE 4 is a fragmentary exploded view of the lock and latch mechanism, parts thereof being broken away and shown in section;

FIGURE 5 is a fragmentary enlarged front elevational view of a portion of the lock and latch mechanism; and

FIGURE 6 is a fragmentary enlarged side elevational view of the latch means of the lock and latch mechanism, parts thereof being broken away and shown in section.

Referring now more specifically to the drawings the numeral 10 generally designates the wall of a garage in which there is mounted a garage door generally referred to by the reference numeral 12. The lock and latch mechanism of the instant invention is shown mounted



on the garage door 12 in FIGURE 1 of the drawings and is generally designated by the reference numeral 14.

The lock and latch mechanism 14 includes a lock assembly generally designated by the reference numeral 16 and a latch assembly generally designated by the reference numeral 18.

Referring now more specifically to FIGURES 2 through 4 of the drawings it will be noted that the lock assembly 16 includes a hollow support housing generally referred to by the reference numeral 22. The housing 22 includes end walls 24 and 26 which are interconnected by means of a generally circular side wall 28.

The end wall 26 is removable and is secured to the side wall 22 by means of suitable fasteners 30.

The end wall 24 includes an outwardly projecting journal 32 by means of which an actuating shaft 34 is journaled. The shaft 34 extends through the journal 32 and is provided with a non-circular outer end portion 36 defined by an annular groove 38. A handle 40 is secured on the non-circular end portion 36 of the shaft 34 by means of a snap ring 42.

A generally circular disk is secured to the end of the shaft 34 remote from the handle 40 in any convenient manner and is referred to in general by the reference numeral 44. The disk 44 is mounted concentrically on the shaft 34 and has a crank pin 46 eccentrically mounted thereon and extending laterally from the disk 44. The crank pin 46 substantially parallels the actuating shaft 34.

The side wall 28 of the housing 22 includes a journal 48 in which there is slidingly disposed an elongated rod-like member 50. The journal 48 comprises guide means for mounting the elongated rod-like member 50 for rectilinear movement perpendicular to the axis of rotation of the shaft 34.

The disk 44 and a connecting rod 52 comprise connecting means for operatively connecting the rod-like member to the shaft 34 for rectilinear movement of the rod upon oscillation of the shaft 34. The connecting rod 52 has one end journaled on the crank pin or operating arm 46 and the other end pivotally secured to the innermost end of the rod-like member 50 as at 54. Thus, upon rotation of the shaft 34 rectilinear reciprocating motion will be imparted to the elongated rod-like member 50.

Secured to the outer end of the elongated rod-like member 50 is one end of a flexible tension member 56 whose other end is secured to one end of a sliding latch 58 as at 60. The latch 58 is mounted in a housing 62 in any convenient manner for reciprocating rectilinear movement therein and is normally spring urged to a position engaging the latch member 64 which is secured to the wall 10 by means of suitable fasteners 68.

The housing 22 is provided with mounting lugs 70, see FIGURE 4, by which it may be secured to the door 12. It is to be noted that the door 12 is provided with a bore 72 for receiving the journal 32 and also with a bore 74 for receiving the tubular lock housing 76. The lock housing has a lock cylinder disposed therein operable by a key inserted thereinto from the side of the door 12 remote from the housing 22 and the lock cylinder (not shown) is operatively connected to the latch member 78 which is normally urged to an extended position by means of compression spring 80.

Inasmuch as the latch means of which the lock cylinder comprises a part utilizes conventional structure, the more specific details of the lock cylinder will not be set forth herein as any suitable locking mechanism may be utilized. However, it is to be noted that the lock cylinder when operated by a key is operatively connected to a first cam member similar to cam member 82 for retracting the latch member 78 as illustrated in FIGURE 6 of the drawings. The cam member 82 is operatively connected to

a knob 84 which is secured to the end of a shaft 85 projecting through the end wall 26 whose other end is disposed within the housing 22 and connected to the cam 82. Thus, upon insertion of a key into the lock cylinder the latch member 78 may be retracted. Additionally, independently of the insertion of a key into the lock cylinder, the knob 84 may be manipulated to actuate the cam 82 in order to retract the latch member 78.

The disk 44 is provided with a circumferentially extending and radially opening recess 86. The housing 22 includes a stop rib or projection 87 which projects inwardly and radially from the circular side wall 28 and into the recess 86 whereupon the terminal end portions of the recess 86 establish limits for oscillation of the shaft 34.

The disk 44 also includes a radially and outwardly opening recess 88 formed therein which may be conveniently disposed substantially diametrically opposite to the recess 86.

As can be best viewed in FIGURES 4 and 6 of the drawings the latch member 78 is receivable within the recess 88 when the elongated rod-like member 50 is in an extended position so that the latch 58 is engaged with the latch member 64 to lock the door 12 in a closed position. However, upon the insertion of a key in the lock cylinder or the manipulation of the knob 84 to retract the latch member 78, the handle 40 may be manipulated to effect rotation of the shaft 34 whereupon the elongated rod-like member 50 will be retracted thus exerting a pull on the latch 58 by means of the tension member 56 in order to retract the latch 58 from engagement with the latch member 64. With the latch 58 retracted from engagement with the latch member 64, the door 12 may be opened.

It is to be noted that the journal 32 and the disk 44 are provided with confronting shoulder portions 90 and 92, see FIGURE 2 and that the snap ring 42 may be removed in order to remove the shaft 34 and the disk 44 from within the housing 22 after the wall 26 has been removed therefrom.

Additionally, the end wall 26 is provided with an arcuate slot 92 through which the free end of the crank pin 46 projects. The end of the crank pin 46 projecting from the housing 22 may be manipulated from the side of the door 12 on which the housing 22 is mounted in order to retract the latch 58 from engagement with the latch member 64. From FIGURE 4 it will be noted that rotation of the crank pin 46 to retract the latch will position the crank pin 46 in an over center position on the opposite side of the longitudinal axis of the member 50 whereby tension on the tension member 56 effected by the spring urged latch 58 will resiliently retain the crank pin 46 in the unlocked position. If the disk is in the unlocked position and is moved past the center position, the tension of spring 80 may be sufficient, if so desired, to effect frictional engagement of the latch member 78 with the periphery of the disk 44 sufficient to prevent the spring of the spring urged latch from urging rotation of the disk 44 to the unlocked position. Thus, in order to lock the door 12, the handle 40 would have to be manually rotated from the exterior of the door 12 or the crank pin 46 would have to be urged to the position illustrated in FIGURE 5 in order to engage the latch 58 with the latch member 64 to lock the door 12. Thus, automatic operation of the lock and latch mechanism 14 would be prevented although the frictional engagement between the latch member 78 and the disk 44 can be momentarily interrupted by actuation of the knob 84 or upon insertion of a key into the lock cylinder of the tubular lock housing 76.

The foregoing is considered as illustrative only of the principles of the invention. Further, since numerous



modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and accordingly, all suitable modifications and equivalents may be resorted to.

What is claimed as new is as follows:

1. A lock and latch mechanism for operating a remote slidably mounted bolt normally spring urged toward an extended locked position, said mechanism comprising a hollow support housing having one end wall adapted to be fixedly mounted on one side of a door, a shaft journaled in said housing, an actuator, means movably mounting said actuator on said housing with a portion of said actuator being movable laterally of and toward and away from said shaft, means on said actuator adapted to have one end of a tension member secured thereto whose other end is connected to said remote slidably mounted bolt, connecting means operatively connecting said shaft and actuator for effecting oscillation of said actuator in direct response to oscillation of said shaft, said connecting means including a portion movable laterally of said shaft and through a plane containing said shaft and in which said movable portion of said actuator is disposed when positioned closest to said shaft, said shaft also including stop means engageable with said housing for limiting oscillation of said shaft between an unlocked position and a locked position with said portion of said connecting means pased slightly through said plane, which plane defines a center position, thereby enabling said shaft to be resiliently urged toward both said locked and unlocked positions, and lockable latch means including a latch carried by said housing and releasably engageable with a portion of said connecting means for preventing rotation of said shaft from said locked position.

2. The combination of claim 1 wherein said connecting means includes a disk mounted on said shaft for rotation therewith and within said housing, said disk defining a circumferentially extending recess, said stop means comprising a projection carried by said housing received in said recess.

3. The combination of claim 1 wherein said connecting means includes a disk mounted on said shaft for rotation therewith and within said housing, said actuator comprising an elongated rod-like member, said mounting means comprising guide means mounting said elongated member for rectilinear movement perpendicular to the axis of rotation of said shaft, said connecting means also including a connecting rod pivotally secured at one end to the end of said elongated member adjacent said shaft and at the other end to a point on said disk spaced radially of the axis of rotation of said shaft.

4. The combination of claim 3 wherein said latch means includes a lock cylinder operatively connected to said latch and projecting from said one end wall and adapted to extend through the door on which said housing is mounted and an operating shaft projecting from the end wall of said housing remote from said one end wall operatively connected to said latch independently of said lock cylinder and provided with a knob on its outer end portion, said latch being mounted for sliding rectilinear movement radially of said disk, the latter having a radially and outwardly opening recess formed in the periphery of said disk in which a portion of said latch is receivable.

**References Cited** in the file of this patent

UNITED STATES PATENTS

| | | |
|---|---|---|
| 2,427,909 | Howell | Sept. 23, 1947 |
| 2,628,117 | Robinson | Feb. 10, 1953 |
| 2,665,932 | Moler | Jan. 12, 1954 |
| 2,682,763 | Williams | July 6, 1954 |
| 2,919,570 | Crew | Jan. 5, 1960 |