Feb. 7, 1933. W. A. THOR 1,896,333

DOOR FITTING

Filed July 31, 1930

Fig. 1.

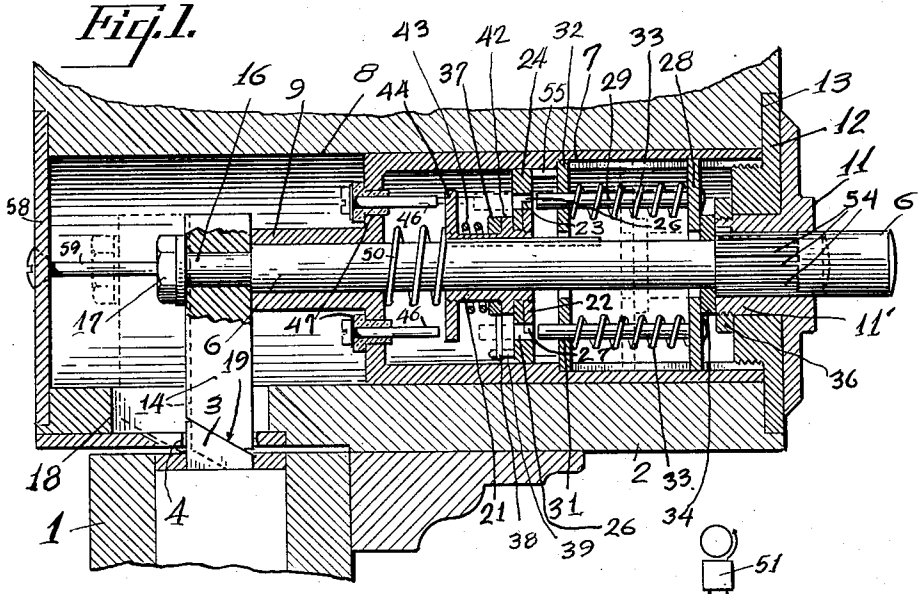


Fig. 2.

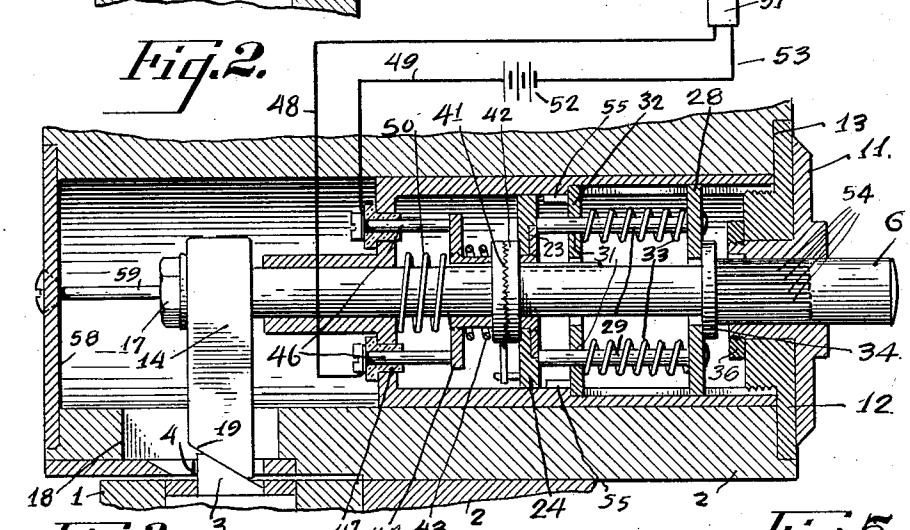


Fig. 3.

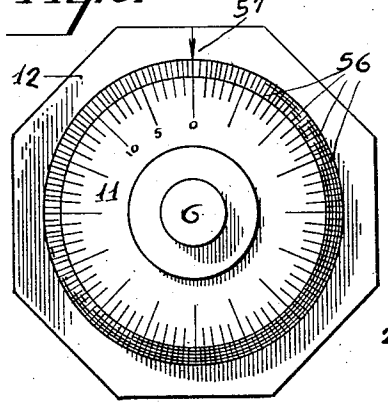


Fig. 4.

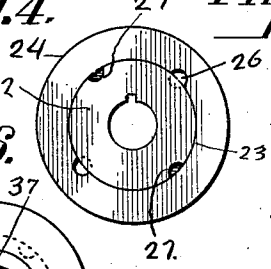


Fig. 5.

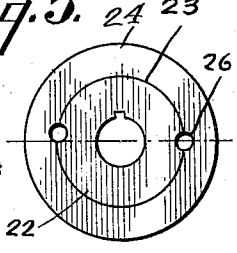
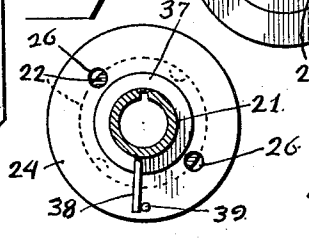


Fig. 6.



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UNITED STATES PATENT OFFICE

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DOOR FITTING

Application filed July 31, 1930. Serial No. 472,155.

My invention relates to improvements in a door fitting having means to operate a door latch to door releasing position, and also having means to close an electric circuit to a bell mounted at a point remote from the door, said fitting being provided with locking means normally rendering the latch operating mechanism inoperative and arranged to be set to an unlocking position whereby the latch operating mechanism is rendered operative and the circuit closing means are rendered inoperative.

The primary object of my invention is to provide an improved door fitting for connection with the latch and door bell of a door.

Another object is to provide an improved device which may be rendered operative either as a latch opening mechanism or as a bell ringing mechanism.

A further object is to provide an improved device adapted to be set by dial in the manner of a combination lock to an operative latch operating position whereby authorized persons possessed of the proper dial setting may operate the latch of a door.

Another object is to provide an improved device of the character described provided with means for normally ringing a door bell, and arranged to automatically ring said bell should it be attempted to operate the latch with the mechanism set in a locked position.

A further object is to provide an improved device of the character disclosed wherein the bell ringing mechanism is rendered inoperative when the device is properly set to latch operating mechanism.

A still further object is to provide an improved device of simple and efficient construction and operation, and embodying improved features of construction and arrangement facilitating the manufacture, installation, and operation of the device.

I accomplish these and other objects by means of the improved device disclosed in the drawing forming a part of the present application wherein like characters of reference are used to designate similar parts throughout the specification and drawing, and in which—

Fig. 1 is a broken transverse section of a casement and door with my improved fitting mounted thereon;

Fig. 2 is a similar view showing the device in bell ringing position, and including a conventional wiring diagram of the electrical connections;

Fig. 3 is a front view of the fitting;

Fig. 4 is a front view of the locking members in locking position;

Fig. 5 is a view similar to Fig. 4 with the locking members in unlocking relation; and

Fig. 6 is a back view of the locking members.

Referring to the drawing, the numeral 1 is used to designate in general a door mounted within a casement 2 and provided with the usual latch bolt 3 entering an opening 4 in the adjacent face of the casement to secure the door in closed position.

My invention comprises a plunger shaft 6 slidably and rotatably mounted within a housing member designated in general by the numeral 7 and mounted within a recess 8 formed in the casement. The shaft is supported at its inner end by a bearing portion 9 formed upon the inner end of the housing 7, and the outer end of the shaft is provided with a knob 11 slidably feathered to the shaft 6 and rotatably supported by a face plate 12 threaded or otherwise secured to the outer end of the housing 7 and seated within a recess 13 formed in the outer face of the casement.

The inner end of the plunger shaft 6 is provided with a latch actuating member 14 rotatably engaging a reduced portion 16 formed upon said inner end of the shaft, and held thereon by a suitable retaining nut 17. The member 14 extends laterally into a slot 18 formed in the casement opposite the latch

3 and is provided with a beveled face 19 engaging the beveled end of the latch bolt whereby an axial inward movement of the shaft 6 causes the face 19 to press the latch 3 inwardly to door releasing position, as indicated in dotted lines in Fig. 1 of the drawing. The member 14 is guided and held against rotation by the slot 18.

A locking member 21 is slidably keyed to the shaft 6 within the housing 7, said member being provided with an annular flange portion 22 seating within a recess 23 formed in an annular locking member 24 slidably and rotatably mounted within the housing. The member 24 is provided with a pair of apertures 26 preferably arranged upon opposite sides thereof and slightly offset with respect to a diameter passing through the axis of the member 24 and one of said apertures for a reason hereinafter more fully explained. The member 21 is provided with a pair of notches 27 formed in the periphery of the flange portion 22 in the same relative relation as the apertures 26 and movable to register with said apertures as hereinafter more fully described.

A plate 28 is slidably keyed within the outer end of the housing 7, said plate 28 having a central aperture permitting sliding movement of the shaft 6 therethrough. A pair of pins 29 are secured upon the plate 28 to extend inwardly in parallel relation to the shaft 6, said pins being arranged in the same relative relation as the apertures 26 and notches 27 whereby said pins may pass through said apertures 26 and notches 27 when in registering relation. The inner ends of the pins 29 extend through apertures 31 formed in a partition 32 mounted within the housing 7 to support and guide the pins in accurately alined positions. Springs 33 are mounted around the pins 29 between the partition 32 and the plate 28 to normally move the plate outwardly against a collar 34 secured upon the shaft 6. The collar 34 abuts against the inner end of a bearing portion 11, formed upon the knob 11, and a nut 36 threaded onto said portion 11′ to retain the knob in operative assembled relation to the face plate 12, thereby limiting the outward movement of the shaft 6 and plate 28 as actuated by the springs 33.

A collar 37 is mounted upon the locking member 21. The collar 37 is provided with a radially disposed arm 38 arranged to engage a pin 39 extending rearwardly from the inner face of the locking member 24 whereby rotation may be imparted from the collar 37 to the locking member 24. The collar 37 is arranged to be adjustably secured to the locking member 21 for rotation therewith, preferably by means of a serrated face 41 engaging a correspondingly serrated face of a shoulder 42 carried by the member 21. The collar 37 is normally held in proximate relation to the shoulder 42 with the serrations thereof in inter-engaging relation by any suitable means, such as a spring 43 whereby the collar may be moved to disengage the shoulder to permit the collar and arm 38 to be adjusted angularly to desired positions, and also to change the combination or unlocking position as indicated by the graduations of the knob 11.

The locking member 21 is provided with an annular flange 44 upon its inner end. A pair of electric contacts 46 are mounted in inwardly extending relation upon the inner end of the housing 7, said contacts extending into slightly spaced relation to the flange 44 when the member 21 is moved with the shaft 6 to its normal outermost position by the springs 33, as shown in Fig. 1 of the drawing. The contacts 46 are insulated from the housing by suitable insulating bushings 47 and conductors 48 and 49 are connected to said contacts. One of the conductors, as 48, is extended directly to an electric bell 51, such as the ordinary door bell, mounted at a point remote from the door. The other conductor is connected to one side of a source of electrical energy 52, the other side of which is connected to the other terminal of the bell 51 by a conductor 53. The circuit through the bell is normally broken between the contacts 46, and said circuit is arranged to be closed by moving the flange 44 inwardly to engage the ends of the contacts and thereby bridge the same to close the circuit. A spring 50 mounted between the member 21 and the inner end of the housing 7 normally moves the member 21 to its extreme forward position as defined by stops 55 within the housing.

The knob 11 is feathered to the outer end of the shaft 6 in any of a plurality of keyways 54 whereby said knob may be set in any desired angularly adjusted position relative to the shaft. The knob 11 is provided with a dial portion having calibrations 56 marked thereon and readable with respect to a fixed index 57 marked upon the face plate 12 whereby the knob 11 and shaft 6 may be rotated through desired angles of movement in either direction, the degree of such movement being indicated by the calibrations.

The operating mechanism constructed substantially as illustrated and as above described is assembled into the housing 7, and the face plate 12 secured thereon. The housing is then inserted into the recess 8 from the front of the casement and secured therein by a plate 58 and securing bolts 59 extending into engagement with the inner end of the housing 7 through the inner face of the casement 2, and on opposite sides of the bearing portion 9 of the housing 7, whereby access may be had to the mechanism from inside the door when necessary, but preventing tampering by unauthorized persons from without.

In operation, the locking members are normally turned with the notches 27 out of registration with the apertures 26, as disclosed in Fig. 4 of the drawing. In this relation, when pressure is applied upon the outwardly extending end of the shaft 6, the shaft is moved inwardly and the inner ends of the pins 29 are moved against the locking members 22 and 24, thereby causing said locking members to be moved inwardly until the flange 44 is moved into contact with the ends of the contacts 46. As the flange 44 bridges the contacts 46, an electric circuit is closed through the bell 51, thereby causing said bell to be operated in the manner and for the purposes of an ordinary door bell. Upon releasing the pressure upon the end of the shaft 6, the springs 33 and 50 return the shaft and the several members connected thereto to normal position.

When it is desired to open the door latch by means of my device, the knob 11 is turned to impart rotation to the shaft 6, thereby causing the arm 38 to swing into engagement with the pin 39 and rotate the locking member 24 to a position with the apertures 26 in axial alinement with the pins 29. This position is indicated by a selected calibration of the dial relative to the index 57. The arm 38 is so disposed relative to the member 21 that when the arm 38 engages the pin 39, the notches 27 will not register with the apertures 26.

When the member 24 has been thus set to proper unlocking position, the dial is turned in the opposite direction, thereby turning the shaft 6 and member 21 in said opposite direction. The member 24 is fitted into the housing 7 sufficiently tight to cause friction to hold the member 24 in adjusted position while the shaft and member 21 are turned in the opposite direction. The shaft and member 21 are turned sufficiently to bring the notches 27 into registering relation with the apertures 26, this position being indicated by another calibration of the dial when moved to register with the index 57. When now pressure is applied upon the outer end of the shaft 6, the shaft is moved inwardly, and the pins 29 are moved to enter and pass through the apertures 26 and notches 27. As the shaft 6 is moved further inwardly, the member 14 is moved to press the latch 3 inwardly to its door releasing position, as indicated in dotted lines in Fig. 1 of the drawing, thereby permitting the door to be opened. As the pins 29 pass through the locking members 21 and 24, said members are not displaced against the pressure of the spring 50, and hence the flange 44 will not be moved to close the circuit through the bell 51. Thus a person possessing the proper combination of numbers to which the knob must be turned, may set the device and open the door without sounding the bell. However, should a person not in possession of the proper combination attempt to open the door in this manner, any inward movement of the shaft 6 made while attempting to manipulate the dial through the proper combination will result in sounding the bell and advising occupants of the apartment that an unauthorized person is attempting to open the door or seeking admission. In this manner, an authorized person may enter without sounding the bell or disturbing the occupants of the apartment, while an unauthorized person will sound the bell and advise the occupants of their presence.

While I have illustrated and described my invention in only one specific embodiment, the specific details of construction and arrangement are subject to modification in a great variety of ways without departing from the spirit of my invention. I therefore do not wish to be restricted to the specific structure as illustrated and described, but desire to avail myself of all modifications which may fall within the scope of the appended claims.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:

1. A door fitting comprising a shaft slidably and rotatably mounted within a door casement; latch actuating means mounted upon the inner end of the shaft; a pair of relatively rotatable locking members rotatably and slidably mounted upon the shaft and having apertures movable to registering relation when the locking members are in unlocking relation; means operable from outside the casement to move the locking members to unlocking relation; means mounted in connection with the shaft and movable axially therewith to engage the locking members when in locking relation, and to enter the registering apertures when in unlocking relation, the locking members being movable axially with the shaft when in locking relation; and electrical contacts mounted adjacent the shaft and bridged by the adjacent locking member when moved axially thereagainst to close an electric circuit through said contacts.

2. A door fitting comprising a shaft slidably and rotatably mounted within a door casement; latch actuating means mounted upon the inner end of the shaft; a pair of relatively rotatable locking members rotatably and slidably mounted upon the shaft and having apertures movable to registering relation when the locking members are in unlocking relation, one of said members being feathered to the shaft and the other being rotatable relative thereto and frictionally engaged within the casement; means for imparting rotation from the keyed member to the rotatable member; a combination dial feathered upon the outer end of the shaft

for turning the shaft and locking members to unlocking position; pins carried by the shaft and movable axially therewith to engage and move the locking members when in locking relation and to pass through the registering apertures without moving the members when in unlocking relation; and a pair of electrical contacts mounted adjacent the shaft, said contacts being bridged by one of said locking members when moved axially thereagainst by an inward axial movement of the shaft while the locking members are in locking relation.

In witness whereof, I hereunto set my signature.

WAINO A. THOR.