

No. 667,297.

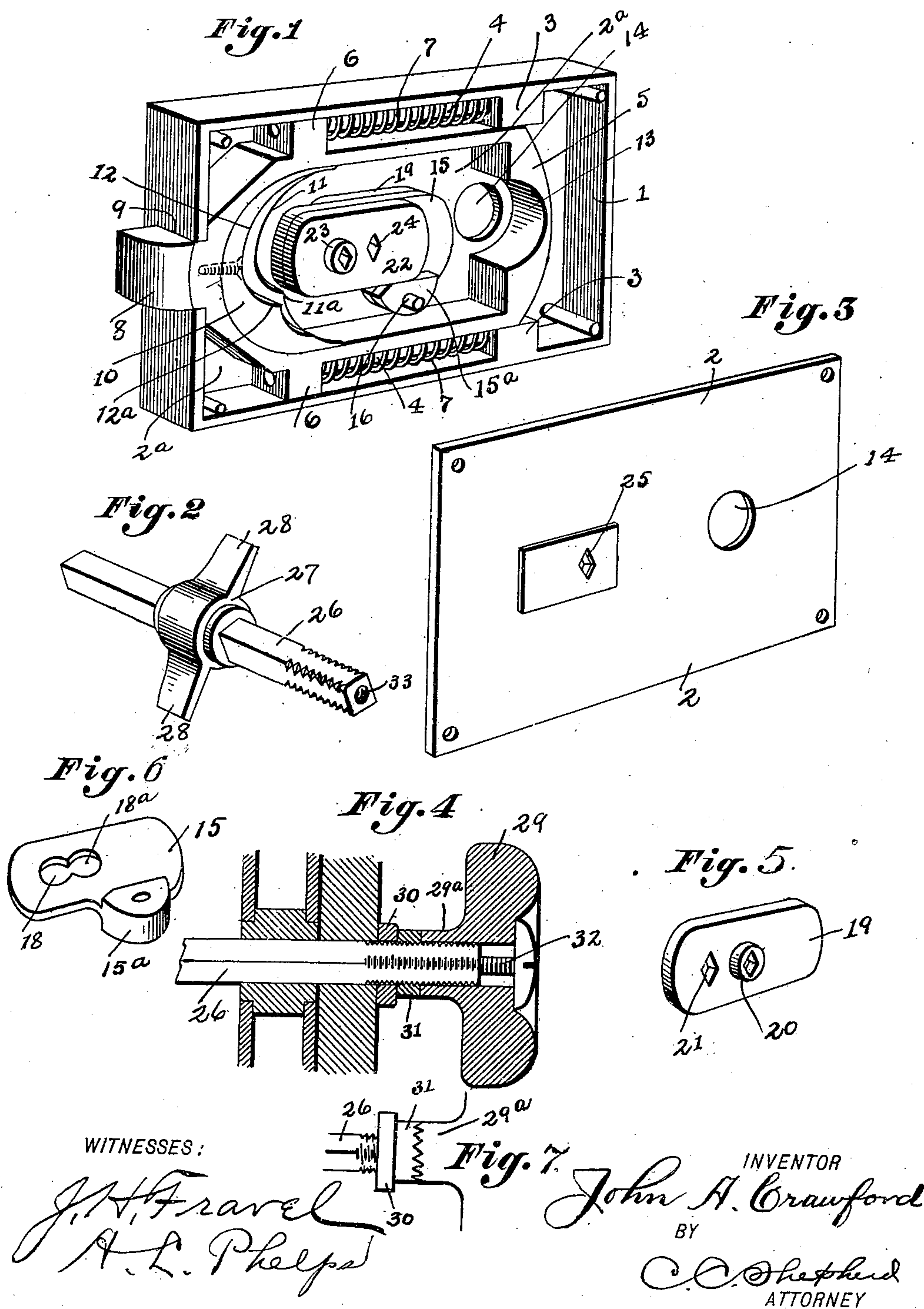
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J. A. CRAWFORD.

LOCK.

(Application filed Nov. 22, 1899.)

(No Model.)



UNITED STATES PATENT OFFICE.

JOHN A. CRAWFORD, OF FINDLAY, OHIO.

LOCK.

SPECIFICATION forming part of Letters Patent No. 667,297, dated February 5, 1901.

Application filed November 22, 1899. Serial No. 737,842. (No model.)

To all whom it may concern:

Be it known that I, JOHN A. CRAWFORD, a citizen of the United States, residing at Findlay, in the county of Hancock and State of Ohio, have invented a certain new and useful Improvement in Locks, of which the following is a specification.

My invention relates to the improvement of door-locks; and the objects of my invention are to provide an improved lock of this class, of superior construction and arrangement of parts, wherein improved means are provided, first, for closing the keyhole against the insertion of a key on the opposite side of the door from which the same is locked, and, second, to provide an effective lock of this class, the mechanism of which cannot be readily tampered with from either side of the door. These objects I accomplish in the manner illustrated in the accompanying drawings, in which—

Figure 1 is a view in perspective of my improved lock with one of the face-plates removed. Fig. 2 is a detail view in perspective of the knob stem or shaft, showing the latch-operating lever thereon. Fig. 3 is a similar view in perspective of the lock face-plate. Fig. 4 is a central longitudinal section through one of the knobs and a portion of the lock-body. Fig. 5 is a detail view in perspective of one of the lock-tumblers. Fig. 6 is a similar view of the tumbler-separating plate; and Fig. 7 is a detail view in elevation of a portion of the knob extension, showing the engagement of the same with the adjusting clutch-ring.

Similar numerals refer to similar parts throughout the several views.

1 represents an oblong lock-casing, the otherwise open side of which is adapted to be closed by a face-plate 2. In forming the locking-casing 1 I produce in the rear portion thereof oppositely-located inwardly-projecting shoulders or lugs 3, from which extend forwardly rods 4.

5 represents the latch-yoke, which, as shown, is the general form of an oblong frame and which is adapted to work longitudinally within the casing 1. In forming the latch-frame 5 I provide the same in its forward portion with laterally-projecting lugs or shoulders 6,

having pin or rod openings therethrough for the free reception of the forward end portions of the rods 4. Between these lugs 6 and the lock-casing lugs 3 said rods 4 are surrounded by coiled springs 7, the latter serving to normally press the latch-frame forward and retain its tongue 8, projected through the lock-casing tongue-opening 9, in the manner indicated in Fig. 1. It will also be observed that in constructing said latch-frame the inner wall of the forward end thereof is semicircular, and this semicircular end portion is adapted to have inserted and detachably secured therein a substantially crescent-shaped stop or bearing piece 10, the latter being angular in cross-section or formed with inner and outer stop-faces 11 and 12, which are on different planes. Each of these inner and outer curved stop portions is provided in its lower portion with an inwardly-projecting shoulder, the latter being indicated at 11^a and 12^a. In constructing the rear end of the yoke or latch frame 5 I form the inner side thereof with a rounded recess 13, and in line with this recess I provide the side or face plates of the lock-frame with oppositely-located knob-stem openings, (indicated at 14.) In constructing the lock-tumblers I secure between the face-plates of the lock-casing and within the yoke-frame 5 an oblong tumbler-separating plate 15, which is raised or removed from contact with the sides of the lock-casing through the medium of a laterally-projecting lug 15^a of greater thickness than the plate 15 and through which the holding pin, rivet, or screw 16 passes. This stationary separating-plate, as indicated in Fig. 7, is provided with adjoining or communicating openings 18 and 18^a. On what I shall term the "inner" side of the plate 15 I provide an oblong locking-tumbler 19, the latter being pivotally connected with the inner side of the plate 15 through the medium of a keyhole socket-piece 20, the outwardly-projecting end of which is journaled in the opening 18^a of the plate 15. This socket-piece or tumbler-hub is provided with a central angular key-hole-opening or key-passage. As indicated in Fig. 6, the tumbler 19 is also provided at a point in front of the socket or hub projection 20 with a correspondingly-shaped key-

hole 21. On the outer side of the plate 15 I provide a lock-tumbler 22, which corresponds in form with the tumbler 19 and the projecting keyhole or passage-hub 23 of which on the inner side of said tumbler 22 is journaled in the opening 18^a of said plate 15. This outer tumbler is also provided at a point in rear of the outer projecting portion of the hub 23 with a keyhole 24. In the side or face-plate 2, as well as in the opposite side plate 2^a of the lock-case, I form a keyhole of corresponding shape with those of the tumblers, this keyhole being indicated in the face-plate 2 at 25. The keyholes of the plates 2 and 2^a are, however, arranged out of alinement with each other.

26 represents a door-knob stem or shaft, which may be of any desired form in cross-section which will present angular shoulders or seats, the outer end portions of said stem having in the case of the employment of a square stem, as shown, their corners threaded. On the central portion of the stem 26 is mounted a latch-yoke-operating lever 27, the latter consisting of a central hub portion, from opposite sides of which project short lever-arms 28. The knob-stem 26 is adapted to pass through the oppositely-located openings 14 of the casing face-plates 2 and 2^a. Upon the outer end portions of this stem are mounted knobs or handles 29, the manner of adjusting and securing which will be explained hereinafter. It is obvious that when the knob and its stem are turned either to the right or left the pressure of one of the lever-arms 28 against one of the straight portions of the rear or inner end bar of the yoke-frame will result in forcing said yoke and its latch-tongue 8 inward, but that through the tension of the springs 4 said latch-frame and its tongue will be normally retained in their outer positions, as shown in Fig. 1.

Although it is obvious that the keyholes in the various parts of my improved lock may be of any desired or operative corresponding shape, I have in the present instance shown said keyholes of diamond forms, the same being adapted to receive a key having a comparatively small round stem portion and an enlarged diamond-shaped head portion.

Assuming that the tumblers are in the position indicated in Fig. 1 of the drawings—that is, that the keyhole-opening 24 of the tumbler 22, the keyhole of the tumbler-hub 20, and the keyhole 25 of the plate 2 are in alinement with each other—the manner of securely locking the door from that side on which is employed the plate 2 consists in inserting the key through said keyhole-opening 25, thence through the keyhole 24, and into the keyhole of the hub 20. The key now being turned, it is obvious that the engagement of the head of the key with the correspondingly-shaped opening of the said hub 20 may result in rotating the inner tumbler 19 until its longer end portion is turned to the front and in engagement with or in close proximity

to the lower shoulder 11 of the bearing-piece 10, in which position said tumbler 19 will prevent the latch-yoke from inward movement and at the same time cover the keyhole of the inner face-plate 2^a, this keyhole being opposite the keyhole-opening 23 of the tumbler 22. The parts being in the position first described and as shown in Fig. 1 of the drawings, it will be seen that the insertion of the key through the keyhole of the face-plate 2^a, thence through the opening 18 of the plate 15, and into the opening of the hub 23 will admit of the tumbler 22 being rotated or reversed in its position, thus bringing the longer end of said tumbler into position for contact with the shoulder 12 of the bearing-piece 10. It will be observed that in this movement, however, the keyhole 24 of the tumbler 22 will be moved out of alinement with the keyhole 25, and the insertion of a key through the latter and beyond or into the tumbler 22 will be prevented. In the manner above described it will be seen that when the door is locked from one side the rotation of the inner tumbler which results therefrom serves to close the keyhole on the opposite side, thus preventing the door being unlocked on the opposite side of the lock from which the same is locked.

Owing to the formation of the projections 11^a and 12^a of the bearing-shoulders 11 and 12 it will be observed that any tendency of the lock-tumblers to move or drop downward when the lock is in the upright position indicated in Fig. 1 will be obviated. In order that the bearing-piece 10 may be inverted in cases where it becomes necessary to invert the lock, I secure said bearing-piece to the yoke-frame through the medium of a screw which may be readily removed.

It will be observed that in forming the knob 29 I form the same with a central opening therethrough and with a countersunk head, as indicated clearly in Fig. 4. In securing this knob in position I first slip over the partially-threaded projecting end portion of the stem 26 a suitable washer 30, after which I screw onto said stem until it abuts against said washer a clutch-ring 31, the latter having its outer end notched to receive and engage the corresponding teeth in the end of the knob extension 29^a. This being accomplished, the knob is fixed in its position through the medium of a retaining-screw 32, which is adapted to enter a threaded opening 33 in the end of the stem 26, and the head of which is adapted to bear in the countersunk outer face of the knob. In this manner it will be observed that any play or looseness between the tumbler-knob extension and the lock or door is readily taken up, thus providing means for the proper employment of the knob on doors of different thicknesses. It will be observed that the means by which I obtain this latter result is exceedingly simple and that the same, as well as the parts of the lock heretofore described, may be produced at a reasonable cost of manufacture.

Having now fully described my invention, what I claim, and desire to secure by Letters Patent, is—

5 In a lock the combination with a casing 1, a spring-actuated sliding latch-frame mounted in said casing and provided with a projecting latch-tongue, a substantially crescent-shaped bearing-piece 10 detachably supported in the forward end of said latch-frame and
10 having inner and outer curved shoulders on different planes, a knob-stem journaled in said lock-casing and carrying means for moving said latch-frame inward, and the opposite face-plates of the lock-case having key-

holes which are out of alinement with each 15 other, of separated pivoted tumblers 19 and 22 mounted in said casing, each tumbler having two keyhole-openings, the corresponding keyhole-openings of said tumblers being adapted to be brought opposite each other, 20 and this alinement of one set of said keyholes adapted to be broken by the rotation of either of said tumblers, substantially as specified.

JOHN A. CRAWFORD.

In presence of—

MARION G. FOSTER,
W. H. KIMLEY.