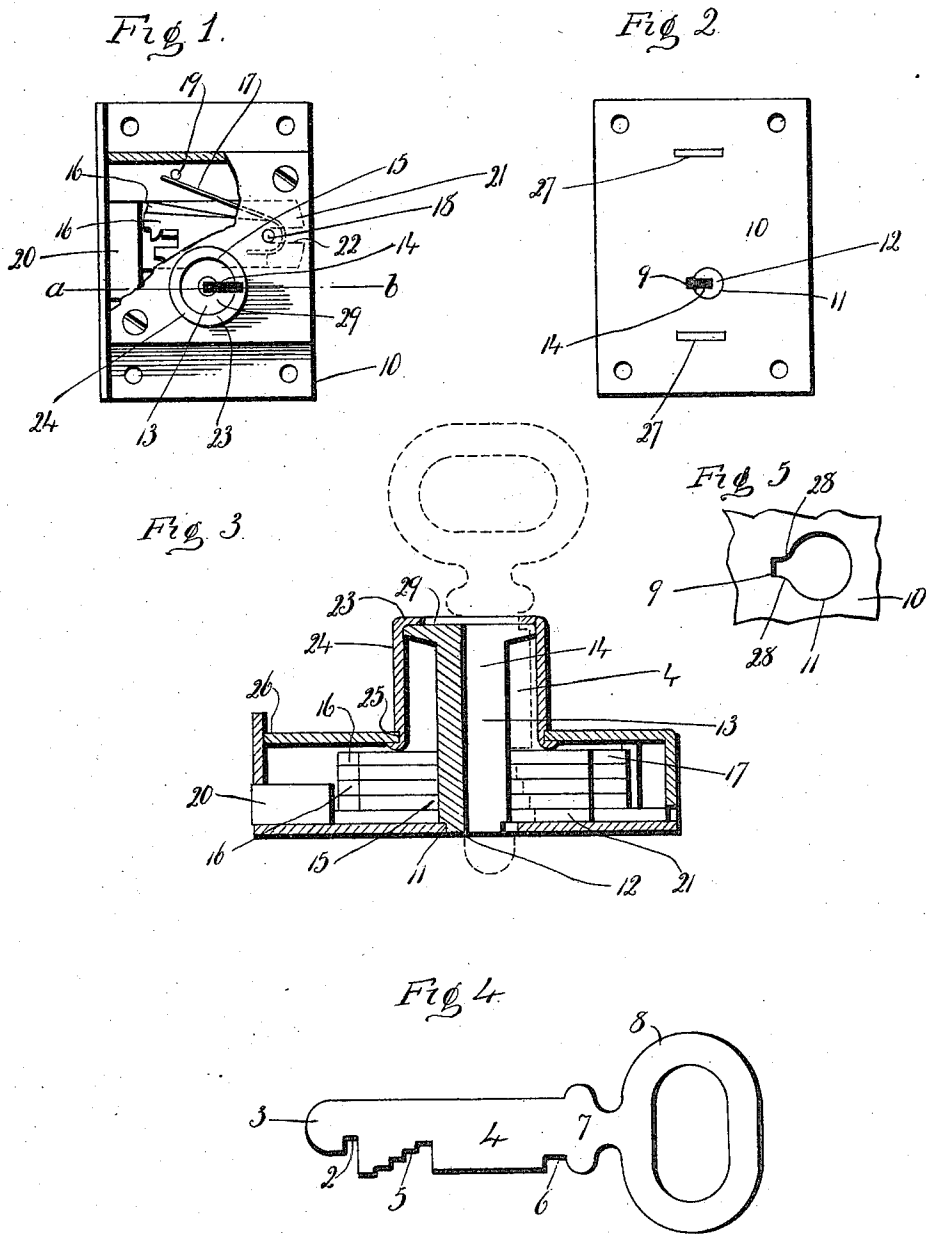


J. ROCHE.
 FLAT KEY LOCK.
 APPLICATION FILED NOV. 20, 1909.

965,409.

Patented July 26, 1910.



Witnesses
 C. J. Reed.
 C. L. Reed

Inventor
 James Roche
 by Seymour Hearn
 Atty

UNITED STATES PATENT OFFICE.

JAMES ROCHE, OF TERRYVILLE, CONNECTICUT, ASSIGNOR TO EAGLE LOCK CO., OF TERRYVILLE, CONNECTICUT, A CORPORATION.

FLAT-KEY LOCK.

965,409.

Specification of Letters Patent.

Patented July 26, 1910.

Application filed November 20, 1909. Serial No. 529,107.

To all whom it may concern:

Be it known that I, JAMES ROCHE, a citizen of the United States, residing at Terryville, in the county of Litchfield and State of Connecticut, have invented a new and useful Improvement in Flat-Key Locks; and I do hereby declare the following, when taken in connection with the accompanying drawings and the numerals of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this specification, and represent, in—

Figure 1, a broken view in elevation of a lock constructed in accordance with my invention with a portion of the cap or cover broken away. Fig. 2 a view thereof in rear elevation showing a positioning-notch in the main or frame plate of the lock for the reception of the positioning-notch in the lead of the key. Fig. 3 an enlarged view of the lock in transverse section on the line *a-b* of Fig. 1. Fig. 4 an enlarged view of the key showing the positioning-notch in its lead. Fig. 5 a broken view of the main or frame-plate of the lock, drawn to an enlarged scale to show the rounding of the corners of the positioning-notch.

My invention relates to an improvement in flat-key locks, the object being to insure the right engagement of the bitings of the flat keys of such locks with the tumblers thereof, regardless of those small variations which are unavoidable even in interchangeable machine-made structures.

With these ends in view my invention consists in a flat-key for flat-key locks, the said key being formed in its lead with a positioning-notch.

My invention further consists in the combination with the main or frame plate of a flat-key lock, the said plate being formed with a positioning-notch, of a flat-key formed in its lead with a positioning-notch for coaction with the notch of the said plate, whereby the position of the key is established in the lock by the coaction of these notches.

In carrying out my invention as herein shown, I form a positioning-notch 2 in the lead or centering terminal 3 of an ordinary flat key 4 having bitings 5, and the usual clearance-notch 6 located at the base of the shank 7 of the bow 8 of the key. The

positioning-notch 2, aforesaid, coacts with a positioning-notch 9 formed in the frame or main plate 10 of the lock and leading out of the circular opening 11 made therein for the reception of the shouldered inner trunnion-like end 12 of the rotary key-post 13 which is formed with a key-way 14 for the reception of the key the bitings 5 of which engage in the usual manner with the key-sweeps 15 of pivotal tumblers 16 having springs 17 and swinging upon a post 18 mounted in the plate 10 which also carries a post 19 with which the springs 17 engage.

The bolt 20 of the lock bears upon the inner face of the plate 10 and has its shank 21 formed with a slot 22 receiving the post 18 which thus assists in guiding the bolt upon which the said tumblers are superimposed. At its outer end the key-post 13 is formed with a circular head 29 through which the key-way 14 passes, the said head 29 having bearing upon the inner face of an inwardly turned flange 23 at the outer end of the tube 24 the inner end of which is shouldered to be set into an opening 25 in the cover 26 which is riveted to the plate 10 which is furnished for that purpose with rivet holes 27.

It will be understood that when the key is introduced into the lock and turned therein the side walls of its positioning-notch 2 at once coact with the metal of the plate 10 immediately surrounding the circular opening 11 therein to position the key against endwise movement without interfering with its free rotation.

Under this construction the positioning of the keys in a series of such locks may be predetermined with such a high degree of accuracy that the variations in the locks may be disregarded for the reason that the only variations that can arise will be slight variations in the width of the slots 2 and in the thickness of the plate 10. These variations when they exist, will never be great enough to permit the key to be sufficiently moved longitudinally in the lock to allow the bitings 5 of the key to coact with any of the tumblers with which they were not designed to coact and vice versa. Whereas in locks as formerly constructed, in which the positioning of the key was determined by the clearance-notch 6 and the flange 23 of the tube 24, it was common

either in pushing the key into the lock or in withdrawing it therefrom, to have its bit-
ings 5 improperly coact with the tumblers
16, because the tubes will sometimes vary in
5 length, either in initial construction or when
swaged in place; because the lock-covers
may vary in thickness, or be sprung more
or less so as to increase or decrease the dis-
tance between the flange 23 and the tumblers
10 16, and because the riveting of the cover 26
to the plate 10 may also disturb the distance
of the parts in the lay-out of the lock. On
the other hand, in my improved construc-
tion, as already described, variations may
15 exist in a lock without affecting the posi-
tioning of the key when the same is formed
with a positioning-notch in its lead coact-
ing with a positioning-notch in the main
plate or other part on which the tumblers
20 of the lock are mounted.

As shown in Fig. 5 the corners of the
positioning-notch 9 are rounded as at 28
to prevent the key from catching as would
likely occur if the corners were left sharp.

25 I claim:—

1. A flat key for use in flat key locks, the
said key being formed in its lead with a
positioning-notch for co-action with that

part of the lock upon which the tumblers are
mounted.

2. In a flat key lock, the combination with
the main or frame plate thereof, the said
plate having the tumblers mounted upon it
and having a positioning-notch, of a flat key
formed with a positioning-notch in its lead
35 to coact with the positioning-notch in the
said plate.

3. In a flat key lock, the combination with
a main or frame plate having a circular
opening and a positioning-notch leading
radially out of the said opening and having
rounded corners, of a key post having its
inner end journaled in the said opening and
formed with a key-way which, when the post
is turned, is brought into registration with
45 the said positioning-notch, and a flat key
formed with a positioning-notch in its lead
to coact with the positioning-notch in the
said plate.

In testimony whereof, I have signed this
specification in the presence of two subscrib-
ing witnesses.

JAMES ROCHE.

Witnesses:

OTIS B. HOUGH,
H. C. CLOW.