

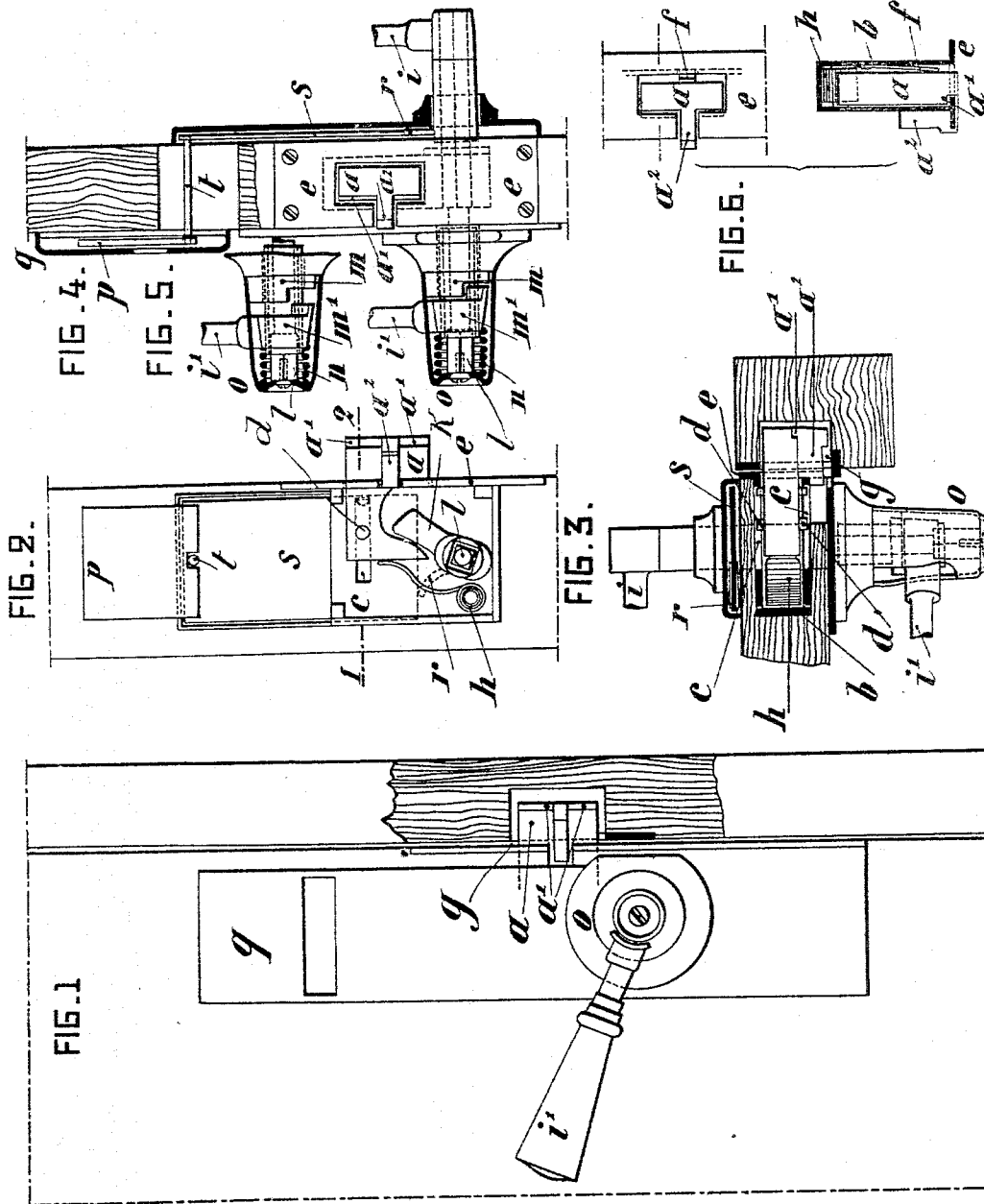
(No Model.)

2 Sheets—Sheet 1.

L. R. LECELLIER.
LOCK.

No. 531,685.

Patented Jan. 1, 1895.



Witnesses:
L. M. Hackelberger,
B. E. Moore.

Inventor
Leon R. Lecellier.
By *Briesen & Knaut*
his attorneys.

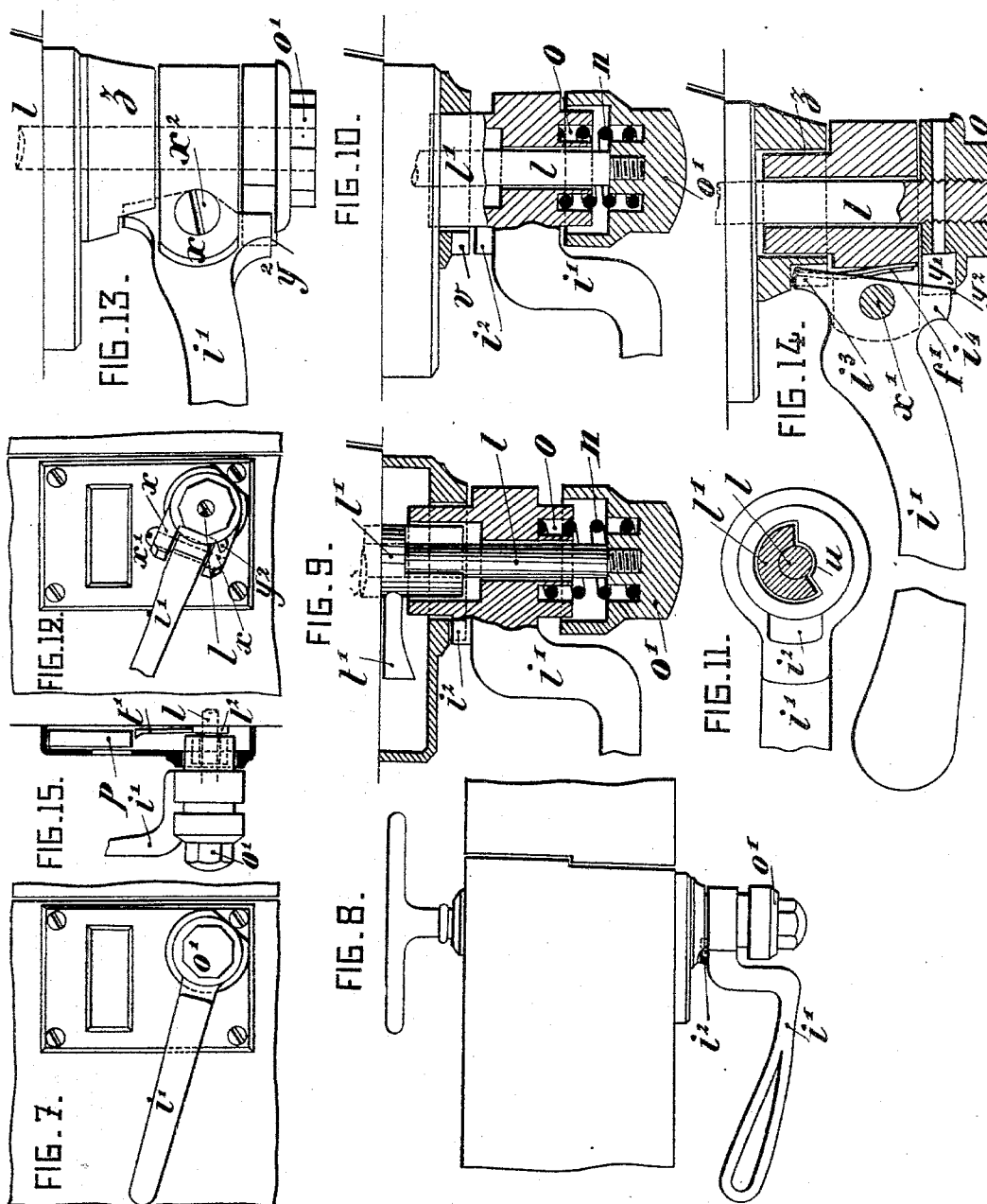
(No Model.)

2 Sheets—Sheet 2.

L. R. LECÉLLIER.
LOCK.

No. 531,685.

Patented Jan. 1, 1895.



Witnesses:
L. M. Hachschlager,
Geo. C. Mowg.

Inventor
Leon R. Lecellier,
By Briesen & Knautz
his Attorneys.

UNITED STATES PATENT OFFICE.

LEON RAPHAEL LECCELLIER, OF VILLEDIEU, FRANCE.

LOCK.

SPECIFICATION forming part of Letters Patent No. 531,685, dated January 1, 1895.

Application filed May 20, 1893. Serial No. 474,986. (No model.) Patented in France November 16, 1892, No. 225,702.

To all whom it may concern:

Be it known that I, LEON RAPHAEL LECCELLIER, of the city of Villedieu, Manche, France, have invented Improvements in Locks for Railway-Carriage and other Doors, (for which I have obtained Letters Patent in France for fifteen years, dated November 16, 1892, No. 225,702,) of which the following is a full, clear, and exact description.

This invention relates to an improved system of automatic safety lock which is more particularly intended for the doors of railway carriages, but which may be also employed with equal advantage in other situations.

The advantages of this improved lock are its great simplicity of construction and action, absolute security being at same time insured by the automatic locking of the inside handle which is so mounted that the door can only be opened from the inside by a movement which cannot accidentally be produced.

The invention is illustrated in the accompanying drawings, forming part of this specification, as applied to a railway carriage door.

Figure 1 shows a face view of the lock with its handle, as seen from the interior of the compartment. Fig. 2 represents a similar view of the lock, on a larger scale, with the cover plate removed for the purpose of showing the mechanism in the locked position. Fig. 3 is a horizontal section on line 1—2, Fig. 2. Fig. 4 is a part-sectional elevation taken in a plane at right angles to Fig. 2, also with the fastening in the locked position. Fig. 5

shows the inside handle in the position to which it must be moved before the door can be opened from the interior of the compartment. Fig. 6 is an end view and horizontal section, showing the application to the locking bolt of a spring catch. Fig. 7 is an inside face view, and Fig. 8 a plan, of the lock with a slightly modified arrangement of inside handle. Fig. 9 is a horizontal section, showing the position of the inside handle when the door is closed, and Fig. 10 is a similar section showing the position to which said handle must be moved to enable the door to be opened from the interior of the compartment. Fig. 11 shows the clutch connecting the handle to the lock spindle. Figs. 12, 13 and 14, show respectively an inside face view, plan, and horizontal section, of a modified construc-

tion of the inside handle locking arrangement. Fig. 15 is a sectional view of a modified arrangement for operating the indicator tablet.

My improved lock may be applied to existing carriage doors without involving any alteration and it occupies a very small space. The lock comprises a bolt *a* provided with laterally-projecting studs *d d*, fitted to slide in guideslots *c* formed in the sides of the lock casing *b*. The bolt *a* is thrown, by the act of closing the door, when it comes opposite the catch box, for which purpose the bolt has a certain amount of lateral play in its casing *b* (as clearly shown in Fig. 6) and is notched so as to present a shoulder *a'* which when the bolt is retracted is forced by a spring *f* at the opposite side of the bolt into engagement with the cover plate *e* through which the bolt slides. The bolt has a projection *a²* on its face which when the door is shut into its frame, as shown in Fig. 3, strikes a plate projecting from the catch box *g*, so as to disengage the shoulder *a'* from the plate *e* and allow the bolt to be thrown by its spring *h*, as in Figs. 2 and 3.

The bolt *a* may be retracted by turning the outside handle *i* which operates the follower *k* on the squared spindle *l*. The opening of the door from the outside is thus effected in the ordinary way, but in order to open it from the inside the handle *i* must be specially operated. In its normal position the handle is prevented from turning by the engagement of a clutch *m'*, formed on the boss of the handle, with its fixed counterpart *m*, as shown in Fig. 4, but this locking may be effected by any suitable form of clutch. The part *m'* is shown as being pressed into engagement with the part *m* by a spring *n* about the squared end *l* of spindle and inclosed within the cap *o*.

To open the door by the inside handle *i'* it is necessary to disconnect *m'* from *m*, thereby compressing the spring *n* and bringing the handle on to the squared end of the spindle to enable it to operate the follower *k*. The action of drawing back the handle by simultaneously pressing on the cap *o* is more particularly facilitated by employing the form of handle represented in Fig. 8 which prevents all risk of the accidental opening of the door and consequently affords absolute security.

Figs. 7 to 11 show another way in which the

lever or other handle is mounted on the spindle. The boss of the handle has a socket *u* forming part of a clutch whereof the other part *l'* is on the spindle *l*, the depth of the clutch engagement being sufficient to admit of drawing back the handle, as hereinafter described without disengaging it from the spindle. The handle is locked by a lug *i*² on the boss of the handle which engages in a notch *v* on the lock casing when the door is closed. The ends of the spiral spring *n* are received in annular recesses in the boss of the handle and the cap screwed on the end of spindle *l*.

To open the door from the inside the handle is drawn back sufficiently to disengage lug *i*² from its notch, the cap serving as a fulcrum if desired. The door can then be opened by pressing down the handle in the ordinary way. The handle may also be mounted as shown in Figs. 12, 13 and 14.

The handle *i'* is pivoted on pin *x'* in ears *x* carried by the boss which is loose upon the spindle *l*. To the end of the spindle is screwed and cottered a nut *o'* provided with a recess *y'* and having a lug *y*². The pivoted end of the handle *i'* has a crosshead *i*³, *i*⁴, the end *i*³ being normally pressed into engagement by means of a spring *f'* with a notch *r* in the collar *z* of the lock casing. To open the door, the handle *i'* is first drawn back to disengage the lug *i*³ from its notch and at same time cause the lug *i*⁴ to enter recess *y'* and act on the lug *y*², when by pressing down the handle its boss *x* will carry round with it the nut *o'* and spindle *l*. The handle *i'* is made of such form as to permit of bringing the hand as near as possible to the center of motion and of pressing the thumb on the cap or nut of the spindle as a fulcrum in drawing the handle back.

The lock is provided with a sliding tablet indicating whether the door is open or shut, the means of operating which may be of the ordinary well-known or other kind. In the example shown in Figs. 2, 3 and 4, the tablet consists of a plate *p* fitted to slide up and

down for the purpose of exposing the indication "open" or "shut" at an aperture made in the front of a casing *q* serving as a guide for the tablet. The weight of the tablet serves to effect its downward movement, while its upward movement is produced by a finger *r* which lifts a plate *s* from which projects a pin *t* supporting the tablet *p* which is notched on its bottom edge to receive it. In Fig. 15, the tablet *p* is shown as raised by a lifter *t'* mounted on the collar *l'* of spindle *l*.

I claim—

1. A safety lock for railway carriage and other doors, having the outside handle rigidly attached to the spindle, the handle at the inner side of the door normally out of engagement with said spindle and locked by a spring-actuated clutch from which it can only be released and thrown into operative connection with the spindle, by first drawing the said handle away from the door, whereby the outer handle can be used to operate the bolt without operating the inner handle, substantially as specified.

2. In a safety lock, the combination of a bolt *a*, a spring *h* actuating said bolt *a*, shoulder *a'* formed on the bolt, a lock casing, a spring *f* acting laterally upon the bolt and serving to engage the shoulder *a'* thereof with the lock casing, a projection *a*² on the bolt adapted to strike a projection on the catch plate when the door is closed, thereby forcing the bolt laterally against the pressure of the spring, freeing the shoulder *a'* from the lock casing and permitting the bolt to be thrown outward by its spring *h* into engagement with the catch plate, substantially as described.

The foregoing specification of my improvements in locks for railway carriage and other doors signed by me this 14th day of April, 1893.

LEON RAPHAEL LECILLIER.

Witnesses:

ALBERT MOREAUE,
JOSEPH CHATEL.