(No Model.) 4 Sheets—Sheet 1.

A. KIRKS.

TIME LOCK.

No. 520,144. Patented May 22, 1894.

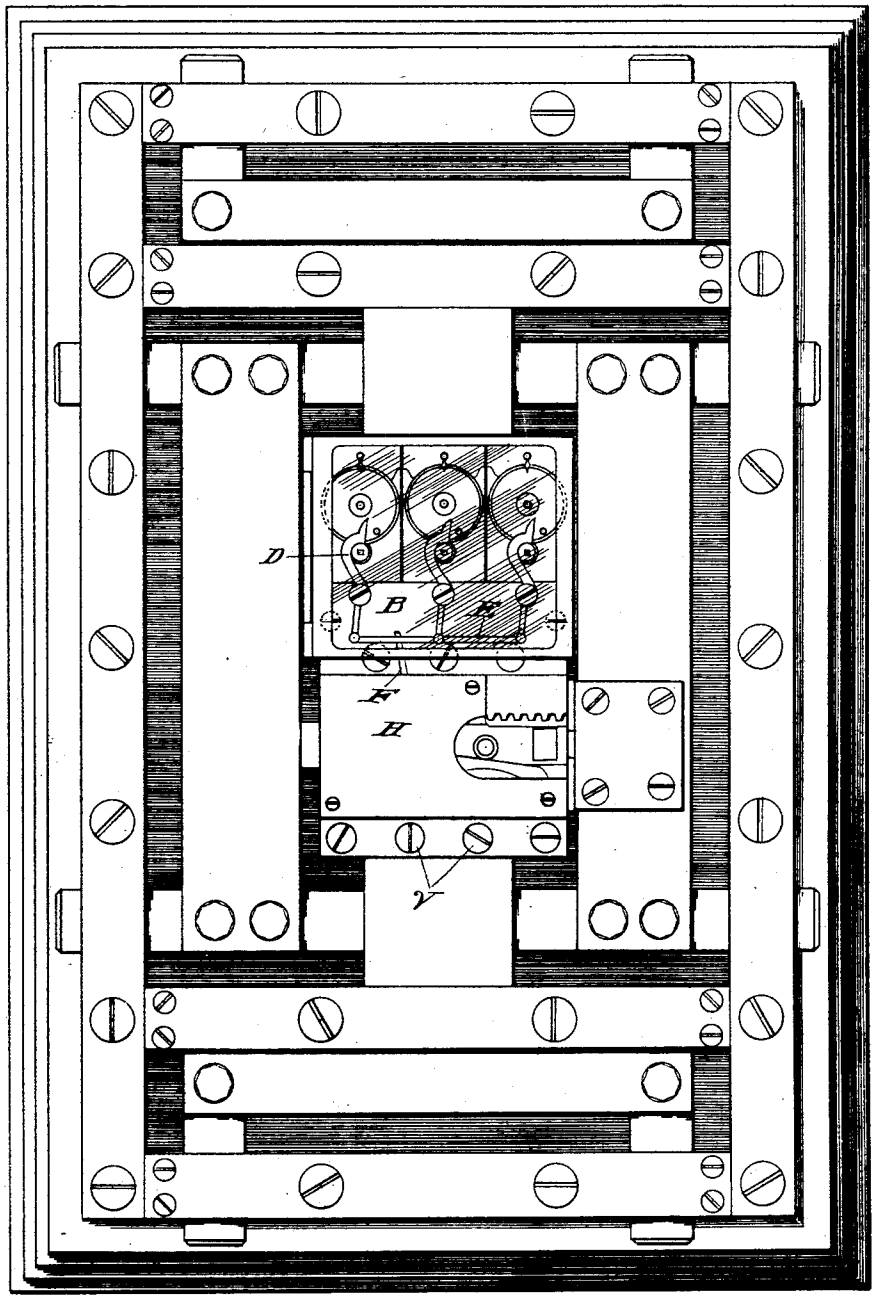

Fig. 1.

WITNESSES

Burt B. Miller

Wannie Manly

INVENTOR

Albert Kirks

By W K Miller

Attorney

THE NATIONAL LITHOGRAPHING COMPANY,
WASHINGTON, D. C.

(No Model.) 4 Sheets—Sheet 2.

A. KIRKS.

TIME LOCK.

No. 520,144. Patented May 22, 1894.

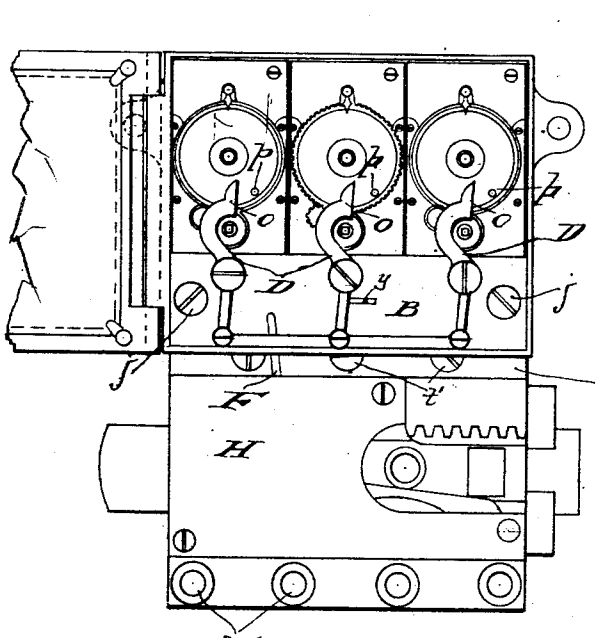

Fig. 2.

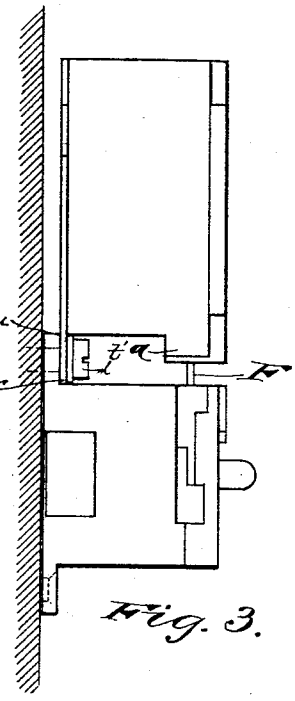

Fig. 3.

WITNESSES

Burt A. Miller

Wannie Manly

INVENTOR

Albert Kirks

By W. K. Miller

Attorney

THE NATIONAL LITHOGRAPHING COMPANY,
WASHINGTON, D. C.

(No Model.) 4 Sheets—Sheet 3.

A. KIRKS.

TIME LOCK.

No. 520,144. Patented May 22, 1894.

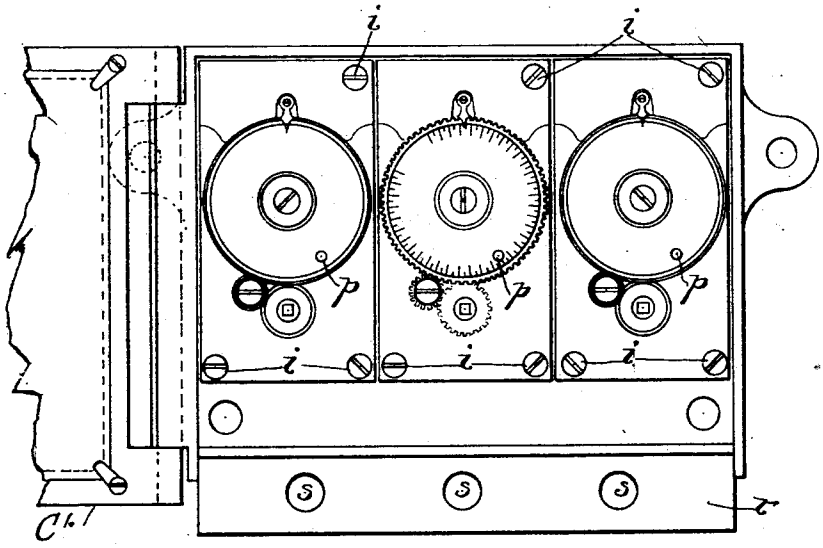

Fig. 4.

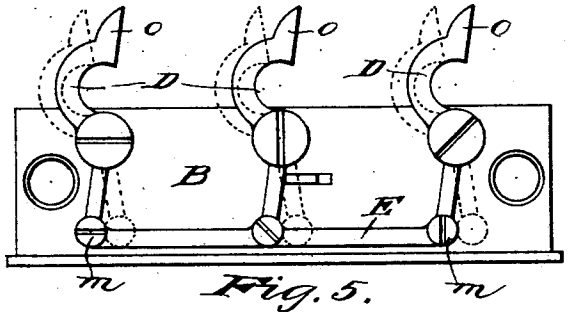

Fig. 5.

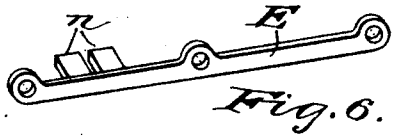

Fig. 6.

Fig. 7.

WITNESSES

Burt B. Miller

Wannie Manly

INVENTOR

Albert Kirks

By W K Miller

Attorney

THE NATIONAL LITHOGRAPHING COMPANY,
WASHINGTON, D. C.

(No Model.) 4 Sheets—Sheet 4.

A. KIRKS.

TIME LOCK.

No. 520,144. Patented May 22, 1894.

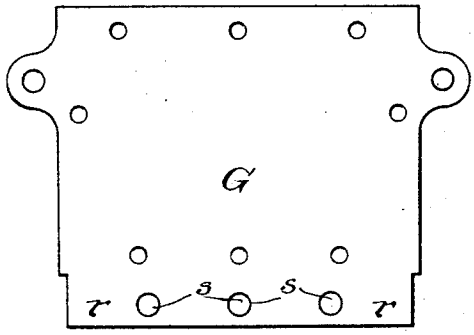

Fig. 11.

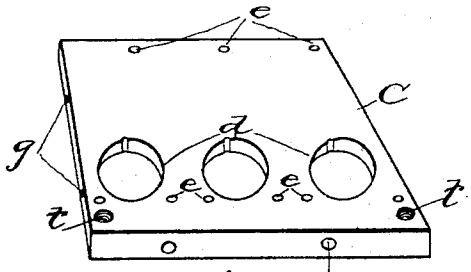

Fig. 10.

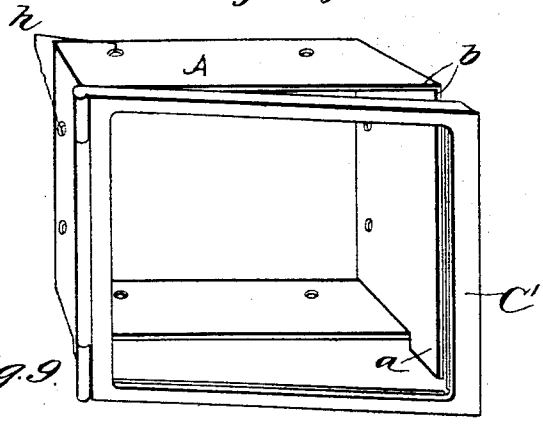

Fig. 9.

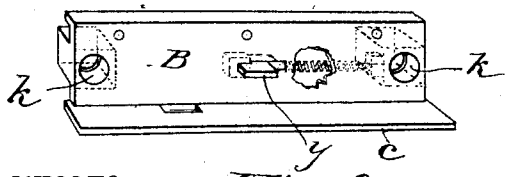

Fig. 8.

WITNESSES
Burt A. Miller
Minnie Manly

INVENTOR
Albert Kirks
By W. K. Miller
Attorney

THE NATIONAL LITHOGRAPHING COMPANY,
WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

ALBERT KIRKS, OF CANTON, OHIO, ASSIGNOR TO THE DIEBOLD SAFE AND LOCK COMPANY, OF SAME PLACE.

TIME-LOCK.

SPECIFICATION forming part of Letters Patent No. 520,144, dated May 22, 1894.

Application filed February 6, 1893. Serial No. 461,209. (No model.)

To all whom it may concern:

Be it known that I, ALBERT KIRKS, a citizen of the United States, and a resident of Canton, county of Stark, State of Ohio, have invented a new and useful Improvement in Time-Locks, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making part of this specification.

My invention relates to an improvement in time locks and consists in providing an improved means of communication between the time mechanism and the automatic or locking mechanism.

My invention further provides an improved box or case for the time mechanism whereby the initial cost may be reduced; the space occupied by the time and locking parts may be reduced and at the same time provide full sized bolt actuating and time mechanisms and inclosing cases and a proportionately larger face or opening in the case containing the time mechanism, for the admission of light, or for observation. Also in providing a removable part to which the parts that serve to connect the time mechanism with the lock are secured.

With these objects in view my invention relates to and consists of certain features of construction and combination of parts as will be hereinafter described and pointed out in the claims.

Figure 1, of the accompanying drawings is an elevation of a safe door from the inside showing the bolt work, and the time mechanism and lock in operative position; Fig. 2, a similar view showing the front side of the case with time mechanism therein, the pivoted levers that communicate with the detent lever of the lock, a fragment of the door open, and the front of the lock. Fig. 3, is an end elevation of the time mechanism case and lock case. Fig. 4, is a front elevation of a time mechanism case with lever support removed. Fig. 5, is a similar view of the support for the pivoted levers that connect the time mechanism with the lock. Fig. 6, is a perspective of the bar that engages the lock detent and to which the levers are pivotally secured for unison of action. Fig. 7, is a similar view of the lever. Fig. 8, is a perspective of the removable lever support. Fig. 9, is a similar view of the time mechanism case with back removed, showing the door frame hinged thereto. Fig. 10, is a similar view of the back of the case, and Fig. 11, is a plan of the plate that supports the time mechanism, and by which it is secured to the lock frame.

Similar letters of reference indicate corresponding parts in all of the figures of the drawings.

Referring to Fig. 9, A represents the inclosing case for the time mechanism, this part of the case is preferably made of a suitable cast metal and apart from the bottom portion for convenience and economy; when in this form the inside of the sides or walls can be better sized and finished by tools that may pass through such as the projected cutter of a tool known as a shaper or other form of scrapers or hand file, which cannot be done when the bottom or back of the case is cast integral with the sides. By referring to Figs. 3 and 9, it will be seen that the case at its lower side is provided with a downward extension as shown at *a*, the removable plate B forming the bottom and side of this projected portion, the object of which is to provide an opening that is larger than the body of the case, in which a plurality of time movements are placed. The further object of the removable part B, will be explained farther on. The door frame C′ is hinged to the side of the case as shown to close against the front edges *b* of the body of the case and against the outwardly projected portion *c* of the removable plate B. The reasons given for casting the sides of the case apart from the bottom or back C, will apply to casting the back, apart from the sides; the accuracy required in the construction is such as to render jigs necessary and to get the desired result with the jig it is preferable if not absolutely necessary to use short and stiff cutters which could not be used and the same result attained if the bottom is cast integral with the sides. The recesses *d* provided to receive a portion of the time movements must necessarily be accurate as well as the several threaded apertures *e* provided to receive the screws by which the time movement is secured to the back. The threaded apertures *t* receive the screws that pass through the

plate B. The apertures *g* in the edge portions of the back correspond with apertures *h* in the sides of the body portion of the case, through which screws are passed and turned into the threaded apertures *g*, in the back. It will be seen by the before going description that a more perfect result can be reached by the provision of the removable back than when the parts are made integral.

The time mechanisms are placed in the case as shown in Fig. 4, screws *i* passed through the face plate and turned into the threaded apertures *e* in the back C, the plate B, is placed in position as shown in Fig. 2, the upper edge of the plate to cover the screws *i* in the lower end of movement plate, and is secured in position by the screws *j* that are passed through the perforations *k* and turned into the threaded apertures *t* in the back C. To the plate B, is pivotally secured the connecting levers D, the lower ends of which have a pivotal connection *m* with the detent actuating bar E, said bar having outwardly projected lugs *n* or other equivalent device to engage the detent F of the lock, the free ends *o* of the lever D, to engage the pin *p* in the dial of the time mechanisms, by which they will be moved over to the position shown by the dotted lines in Fig. 5 at which point the detent will release the compressed spring, in the lock by which the door bolts will be drawn from the door jambs. At this point I wish to call particular attention to the simplicity and directness of the connection between the plurality of the time movements and the plurality of levers D, and the detent F through the parallel bar E.

The supporting plate G, (see Fig. 11) is secured to the back plate C, as shown in Figs. 3, and 4, having a portion *r* projecting below the case, in which is provided perforations *s* through which the screws *t'* are passed and turned into threaded apertures in the flange *u* of the lock as shown in Fig. 3.

To place the lock and the timing mechanism on a safe or other door, the cap or cover H of the lock is removed, the detent F taken out, the lock is then secured to the door by screws as *v*, (see Fig. 1) passed through perforations *w*, in the flange portion of the lock case, plate B, of the time movement case is removed, as shown in Figs. 4 and 5, and the projecting portion *r* secured to the flange of the lock case by screws *t'* passed through apertures *s* in the plate G and turned into threaded apertures provided in the flange of the lock case. The plate B with the levers D is now replaced in the case the detent returned to the lock and the cap H secured in position, thus placing the parts in the relative position shown in Figs. 1, 2 and 3, the end of the spring bar *y*, (see Figs. 8 and 2) resting against the lower portion of the lever D, serves to hold the detent F of the lock in engagement with the locking mechanism.

Referring to Figs. 2 and 3, it will be seen that the time mechanism cannot be removed from the case without first taking out the plate B with the levers D, as the screws by which they are secured to the back plate are covered by the plate B; it will also be noticed, (see Fig. 3) that the inclosing case cannot be taken from the door without first removing the plate B, and levers D, for the reason that the extension of the case formed in part by the plate B, covers the screws *t'* to such an extent that they cannot be removed.

To remove one or more of the time movements the lock must be entirely disabled first by taking off the lock cap H, and removing the detent and then removing the plate B, with the operating levers, thus rendering the lock entirely inoperative, until the parts are all replaced in operative position, thus rendering it impossible for the door to become locked without having an operative means inside of the safe to release the door at some previously determined time by the pin *p* of the time mechanism engaging the free end *o* of the levers D to move said levers and through them the bar E and detent F.

By overlapping the parts as shown in Figs. 2 and 3, I provide a time movement inclosing case of such size as to provide room for large or efficient time movements with an enlarged face opening, and for a lock of greater efficiency than heretofore, and yet accomplish all within less space than formerly. I will also call attention to the fact that it is not necessary to remove the time movements to secure the case to the door, as formerly when the screws were passed through the case under the movement.

Having thus fully described the nature and object of my invention, what I claim, and desire to secure by Letters Patent, is—

1. The combination with an inclosing case for a plurality of time mechanism, of a back secured in said case, a support secured to said back and having one of its edges projecting beyond one of the edges of the back and a lock case bolted to the projected edge, substantially as herein described.

2. The combination with a safe-door of an inclosing case for a time mechanism having a support projecting beyond the edges of the said case, a lock case secured to the projected portion of the support and a plate secured to the time lock case and covering the joint of connection of the support and the lock case to prevent the removal of the fastening means by which the support and lock case are secured together and to the safe-door, substantially as herein described.

3. The combination with an inclosing case, of a plurality of mechanisms, a removable plate B, a plurality of levers D, fulcrumed thereto, a bar E, engaging the detent of a locking mechanism, and adapted to be engaged by a pin, forming part of the time mechanism, substantially as specified.

4. The combination with an inclosing case having a projection on one side of a series of time movements, a removable plate having

a series of levers pivotally secured to said plate, one end of said levers pivoted to a detent actuating bar, the free ends to directly engage the time movements, a door to inclose the case and a downward extension, and a locking mechanism, substantially as described and for the purpose set forth.

5. The combination with a time movement case, and a lock case, fastening means for securing the cases together and a plate secured to one of the cases and overlapping said fastening means, thus covering the fastening means and preventing their removal, substantially as herein described.

6. In a time lock, the combination with a case and the movements supported therein, of the plate B having a portion overlapping the time mechanism and a portion forming one side of the case, substantially as herein described.

7. The combination in a time lock, of a plurality of time mechanisms an inclosing case therefor having downward extension, of the removable plate B, levers D pivotally secured to said plate and an actuating bar E that engages the detent F of the locking mechanism, substantially as herein described.

In testimony whereof I have hereunto set my hand this 1st day of February, A. D. 1893.

ALBERT KIRKS.

Witnesses:
W. K. MILLER,
BURT. A. MILLER.