

(No Model.)

J. W. SEE.
KEY FOR WINDING TIME LOCKS.

No. 464,189.

Patented Dec. 1, 1891.

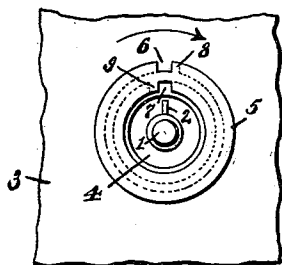


Fig. 1.

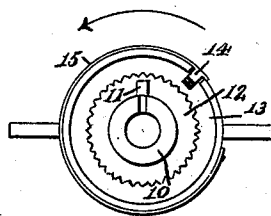


Fig. 3.

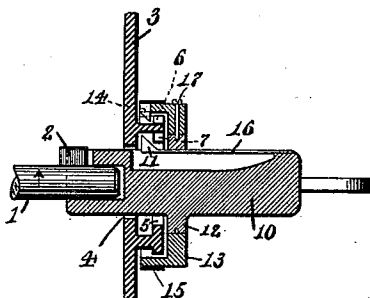


Fig. 5.

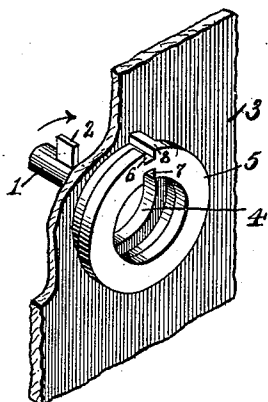


Fig. 2.

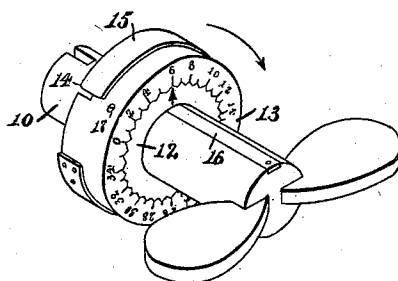


Fig. 4.

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KEY FOR WINDING TIME-LOCKS.

SPECIFICATION forming part of Letters Patent No. 464,189, dated December 1, 1891.

Application filed August 15, 1891. Serial No. 402,742. (No model.)

To all whom it may concern:

Be it known that I, JAMES W. SEE, of Hamilton, Butler county, Ohio, have invented certain new and useful Improvements in Keys for Winding Time-Locks and other Devices, of which the following is a specification.

In one class of time-locks the springs are wound clear up and the adjustment of the lock is effected by setting pointers or dials with which it is provided, after which the lock will repeat its locking and unlocking performance as long as the spring-power maintains its clock-work in motion. In locks of this class the winding-key is not an agency of adjustment. But there is another class of time-locks in which the spring runs down or reaches an unchangeable arresting-point, whereupon the lock opens, the length of time during which the lock is to remain on guard being determined by the extent to which the spring is wound. For instance, if the spring has a capacity for forty-eight hours and be wound clear up, forty-eight hours will be consumed in the running down of the spring and the lock will remain on guard for that time. If the spring be wound up half-way only, the lock will open twenty-four hours after winding. The degree of winding is indicated by pointers or dials, showing the degree of winding. In locks of this latter class the winding-key is an instrument of adjustment, and graduated devices in the lock indicate the degree to which the adjustment has been made. This class of time-locks requires, generally, a daily winding and setting, and much annoyance will result from errors in the manipulation. Burglar-proof safes are often small and low down, and are often set within the dark recesses of fire-proof vaults or fire-proof safes, and the proper reading of graduations in the locks is a matter of extreme difficulty. Most situations of time-locks on safes within vaults call for a portable light when the setting is to be done, and the use of such lights is to be condemned. It is the frequently-expressed opinion of the users of time-locks that the safe-makers and the time-lock makers have conspired to make the required manipulations as inconvenient as practicable, most safe-doors opening to the

right, so that manipulations by the left hand are called for unless there is room to swing the safe-door clear back, which is never the case with burglar-proof chests placed within fire-proof safes. When the safe is closed and the time-lock is on guard, we may live in reasonable hope that the lock will open at the predetermined time, this hope, however, being too often mingled with a fear that the adjustment was not made as intended. The merchant on his way home doubting whether he locked his store-door has only to return to the store and try the key in the door; but doubt can find no such relief in connection with the time-locks. When the hour for opening comes, if the safe opens all is well; but if the safe refuses to open a question arises as to whether the fault is due to misadjustment in locking or to some unhappy accident to the time-lock. If we could be assured that the lock had simply been set to guard too long, we could wait in patience. Tuesday morning is the time for trouble with the time-lock in the bank. A special setting is made Saturday night to run the lock over Sunday, and on Monday the setting should be restored to its normal one-day period. A neglect of this Monday operation causes the time-lock to lock on Tuesday as if it were another Sunday, and, until the accident has happened more than once, this Tuesday is a day of anxiety, and only Wednesday morning can tell whether the lock has met with an accident or has simply been misset.

My present invention relates to improvements in the keys for winding this class of time-locks. An adjustment is made upon the key to determine the degree of winding and, the key, being kept outside the safe, furnishes a record of the degree of winding. The adjustment of the degree of winding is effected by adjusting the key, which can be easily taken to the light, where its graduations can be easily read.

The invention consists in forming the key in two parts, one part to engage the winding-arbor and the other part to engage a fixed stop on the locked case, the two parts of the key being adjustable with reference to each other.

In addition to time-locks there are other devices in connection with which my improved key will be useful. For instance, in certain electrical calling-instruments we turn a pointer a certain distance to call a policeman, and another certain distance to call a messenger, and so on. My improved key used in connection with such apparatus would prevent the possibility of mistakes.

In this specification and the accompanying drawings I merely set forth the principle of my invention and the best mode in which I have contemplated applying that principle, the described form being a mere exemplification of the invention.

My invention will be readily understood from the following description, taken in connection with the accompanying drawings, in which—

Figure 1 is a front elevation of the key-hole; Fig. 2, a perspective view of the key-hole; Fig. 3, a rear end view of the key; Fig. 4, a perspective front view of the key, and Fig. 5 a vertical section of the key in the key-hole.

In the drawings, 1 indicates the arbor or spindle to be wound; 2, a bit thereon for the key to drive it by in winding; 3, the front plate of the lock; 4, the key-hole through the plate at the arbor; 5, a concentric flange around the key-hole; 6, a notch in the outer periphery of the flange; 7, a notch in the inner periphery of the flange; 8, a stop to the rear of the flange at the right of the notch 6; 9, a similar stop at the left of the notch 7; 10, the key adapted to be poked through the key-hole into engagement with the arbor; 11, a tooth projecting outwardly from the key and having a square front face and a beveled rear face and so disposed as to come in contact with the flange and prevent the key being properly inserted except when the tooth is brought to the notch 7; 12, a serrated hub upon the key; 13, a rim having its bore serrated to fit the serrated hub; 14, a tooth projecting inwardly from this rim and having a beveled front face and a square rear face and so disposed as to engage behind the flange and prevent the withdrawal of the key except when this tooth is brought to the notch 6; 15, a spring (shown as in strap form) connecting the tooth 14 with the rim elastically, so that the tooth may spring outwardly; 16, a spring uniting the tooth 11 to the key-body, so as to permit that tooth to spring inwardly, and 17 a keeper pin or screw engaging the rim and a groove in the serrated hub to prevent the accidental sidewise displacement of the rim upon the hub.

The position of the rim upon the hub may be altered precisely as the tumbler of a combination-lock is altered, by simply pulling the rim off the hub and putting it on in a new angular position, which position may be read

from the graduations. Assume that a complete revolution of the key represents thirty-six hours guarding for the time-lock. Assume that the rim is so set upon the key-body that tooth 14 will be one-sixth of the circumference to the rear of tooth 11, and assume that the winding is to take place in the direction indicated by the arrows. If we try to put the key in the key-hole, tooth 11 will strike the flange and the key will only enter when this tooth is brought to notch 7. The key may then be pushed home, tooth 14 yielding outwardly, so as to get behind the flange. The key cannot be turned against the arrow because stop 9 would arrest tooth 11. The key cannot be withdrawn from the key-hole because tooth 14 has snapped behind the flange. The only thing that can be done is to turn the key in the direction of the arrow, and when tooth 14 reaches notch 6 it can go no farther, being arrested by stop 8, and the key may then be withdrawn, tooth 11 yielding so as to get from behind the flange. The result is that the key has been turned one-sixth of a revolution, meaning six hours guard for the time-lock. The key should be kept outside of the safe and its setting should never be altered until the new setting is needed. It therefore follows that the reading of the key shows the degree to which the lock has been wound. The lock must have been wound properly or not at all, else the key could not have been removed from the key-hole. The key can readily be set as desired. For ordinary bank work non-adjustable keys may be employed, one key for common days, another key for Saturday setting, and another key for those cases where a holiday joins Sunday. In such case the keys need not be adjustable.

The construction may vary largely without departing from the invention.

I claim as my invention—

1. The combination, substantially as set forth, of an arbor, a fixed stop, a removable key adapted to engage the arbor, and a stop carried by the key and adapted to engage said fixed stop and limit the rotation of the key and arbor.

2. The combination, substantially as set forth, of an arbor, a fixed stop, a removable key adapted to engage the arbor, a limit-stop on the key to engage said fixed stop and limit the rotation of the key and arbor, and devices for adjusting the position of the limit-stop upon the key.

3. The combination, substantially as set forth, of a key-body and an adjustable winding-stop thereon.

4. The combination, substantially as set forth, of an arbor, a notched flange thereat, a removable key adapted to engage the arbor, a tooth on the key to engage the flange and prevent the application of the key to the arbor, except as permitted by a notch, and a

tooth on the key to engage the flange and prevent the withdrawal of the key, except as permitted by a notch.

5 5. The combination, substantially as set forth, of a key-body, a stop to limit the rotation of the key, adjusting devices to alter the position of the stop on the key, and gradua-

tions to show the position of adjustment of the stop on the key.

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