R. KOPP.

TIME RECORDER.

APPLICATION FILED APR. 20, 1910.

964,475.

Patented July 12, 1910.

Fig. 2.

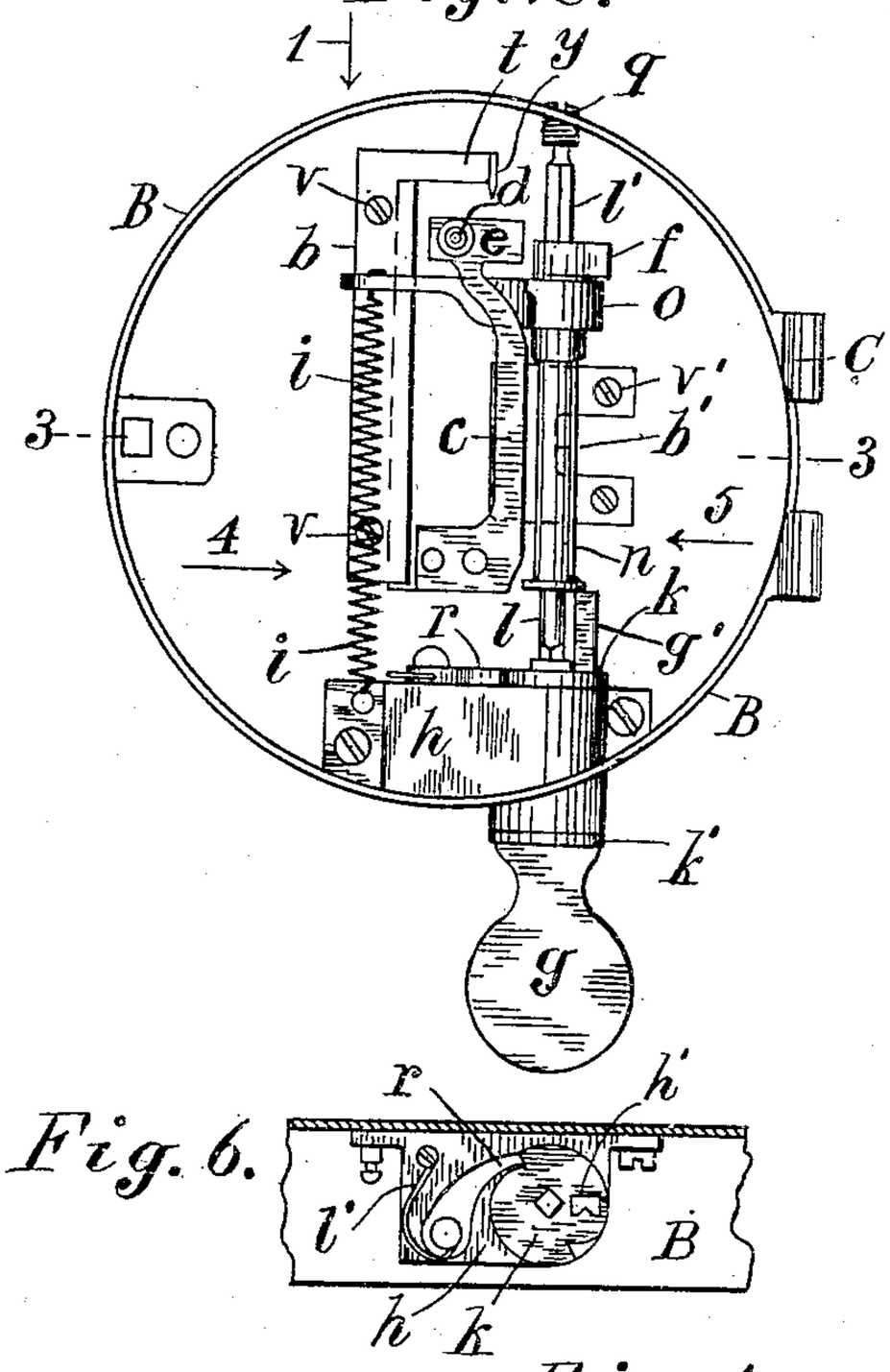


Fig. 4.

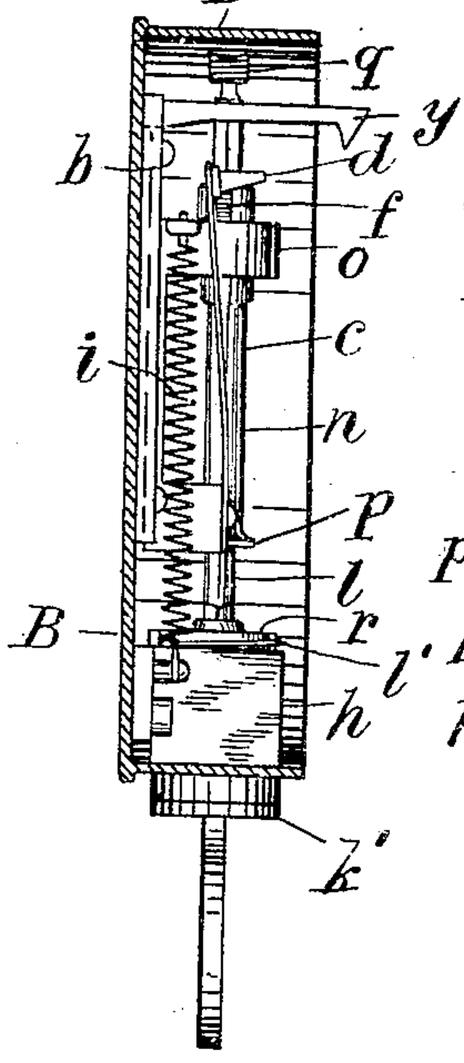


Fig. 5.

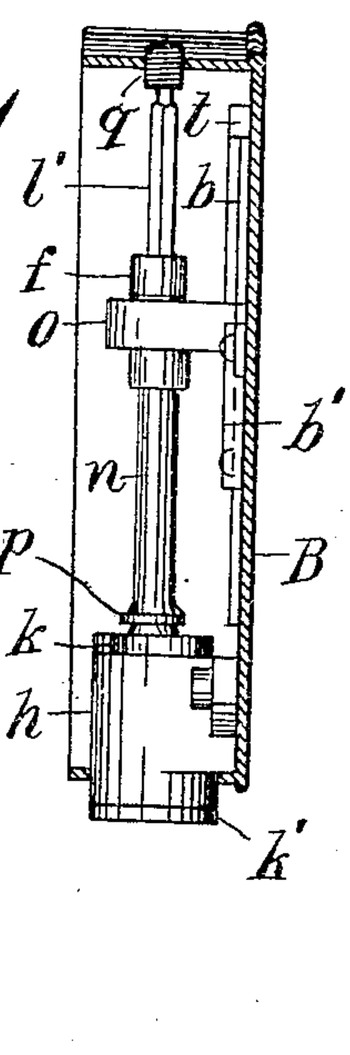


Fig. 6.

Fig. 7.

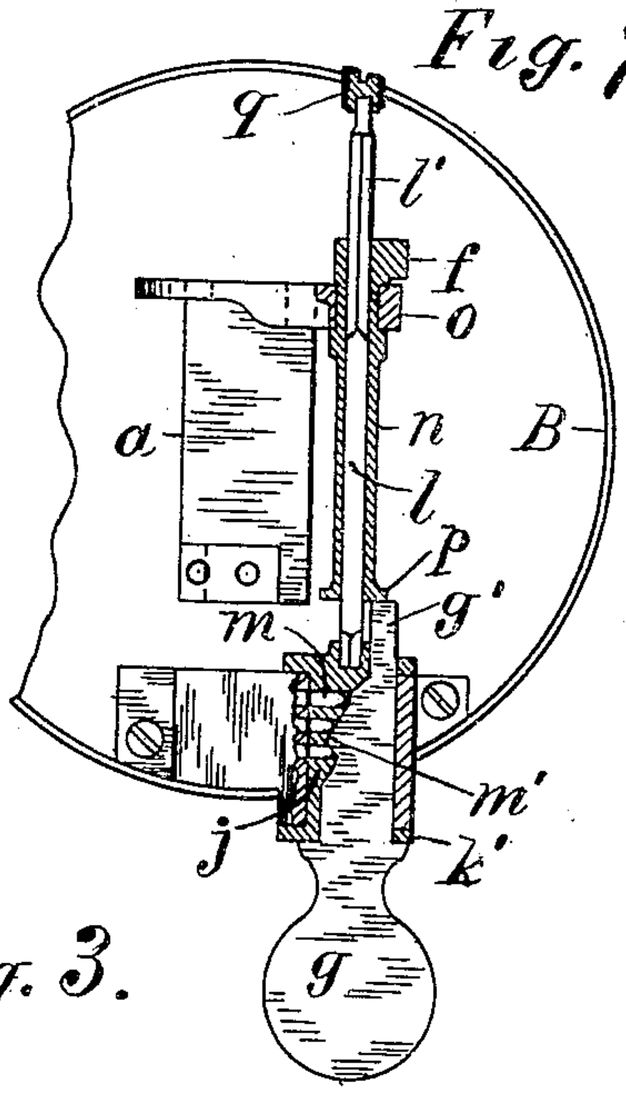
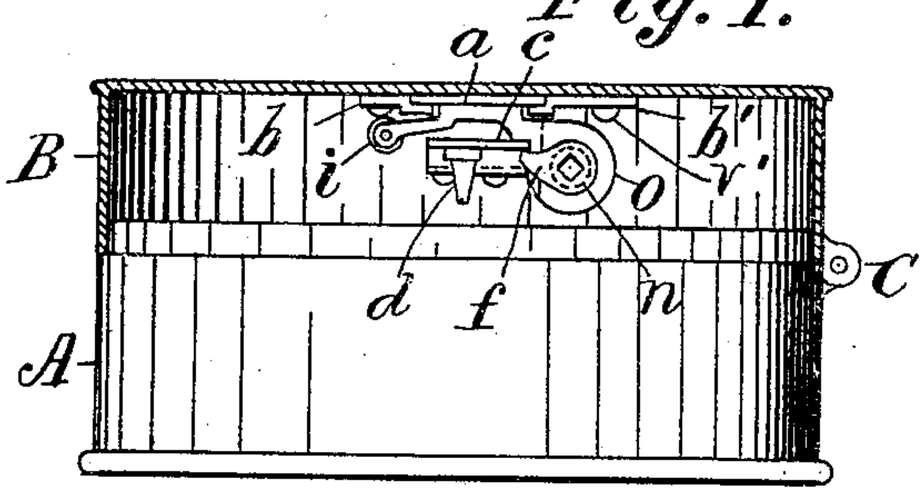


Fig. 1.



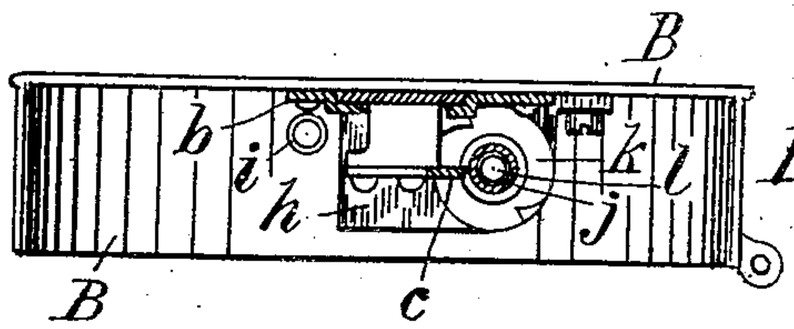


Fig. 3.

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Robert Kopp, per
Thomas S. Crane, Atty.

UNITED STATES PATENT OFFICE.

ROBERT KOPP, OF BELMAR, NEW JERSEY.

TIME-RECORDER.

964,475. Specification of Letters Patent. **Patented July 12, 1910.**

Application filed April 20, 1910. Serial No. 556,539.

To all whom it may concern:

Be it known that I, ROBERT KOPP, a citizen of the United States, residing at Belmar, county of Monmouth, and State of New Jersey, have invented certain new and useful Improvements in Time-Recorders, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

This invention relates to that class of time recorders or watchmen's detectors having a suitable case with a time-card rotated by the clock-movement, and a spring-hammer adapted to mark the time-card when suitably actuated by a key.

The hammer in this device is mounted upon a slide in the cover of the time recorder to move radially of the time-card, and a series of keys to be used at different stations is provided with bits of different lengths so that when inserted through a hole in the cover they may shift the slide and the hammer to different distances from the center of the time-card and then actuate the hammer to impress the card. Heretofore, the keys have been simply inserted through a key-hole in the cover, and the bit upon the key has been used as the agent for directly actuating the spring which carries the hammer; but it is very easy to counterfeit such keys, and the object of the present invention is to use keys which are difficult to duplicate, in conjunction with a separate device for actuating the hammer intermediate to the key and the hammer-spring, so that the key shall operate only indirectly in marking the card.

The invention is shown in connection with a Yale lock having a rotatable barrel with a longitudinal slot at one side, and a key adapted to actuate tumblers which hold the barrel normally from rotation.

The intermediate mechanism consists of a spindle extended axially from the inner flange of the barrel parallel with the slide which carries the hammer-actuating spring, and having a sleeve longitudinally movable upon the spindle and journaled upon the slide and carrying a dog adjacent to the hammer-head for snapping the spring to actuate the hammer. This spindle and sleeve can only be rotated by turning the barrel which in turn can only be revolved by a key adapted to shift the tumblers.

The keys, as is necessary, are made with bits of different lengths, adapted to shift the sleeve upon the spindle and to also shift the slide and hammer-spring, through the engagement of the sleeve with the bearing upon the slide.

The invention will be understood by reference to the annexed drawing, in which—

Figure 1 is an edge view of the case with a cover shown in section thereon and the hammer-mechanism viewed from the arrow 1 in Fig. 2, which shows the interior of the cover. Fig. 3 is a section on line 3—3 in Fig. 2; Fig. 4 shows the cover in section with the hammer-mechanism viewed from the arrow 4 in Fig. 2; Fig. 5 shows the cover in section at the center of the spindle with the the hammer-mechanism viewed from the direction of the arrow 5 in Fig. 2; Fig. 6 shows the inner side of the lock-case with the ratchet-mechanism; and Fig. 7 is a partial plan of the cover showing the lock, the slide and the parts connecting the lock-barrel and the slide.

The case is designated A, and the cover B jointed thereto by a hinge C, which cover in practice is held closed upon the clock-case by a hasp D and locking mechanism.

The slide *a* is mounted in ways *b*, *b'* within the top of the cover and has a block at one end to which the hammer-spring *c* is fastened and provided at the opposite free end with the hammer-head *d*.

A lug *e* at the side of the hammer-head is provided to engage the rotating dog *f* actuated by a spindle *l*.

A Yale lock-case *h* is secured within the cover adjacent to one end of the slide and a spring *i* draws the slide normally toward the lock-case. A barrel *j* is fitted within the lock-case and is provided with a flange *k* upon its inner end and a flange *k'* upon its outer end, the inner flange having a square socket in the center to receive the end of a spindle *l*. The barrel is provided as shown in Fig. 7, with tumblers *m* and the key is shaped with teeth *m'* to shift the tumblers so that the barrel may be rotated.

A sleeve *n* upon the spindle *l* is journaled in a bearing *o* projected from the end of the slide near the level of the hammer-spring *c* adjacent to the lug *e* upon the spring, and the dog *f* is attached to the sleeve to rotate therewith. The sleeve is

provided with a shoulder *p* at the end next the lock-case *h*, and the spindle adjacent to the dog *f* is squared, as at *l'*, and fitted to a square hole in the dog so as to rotate the dog when the spindle is turned.

The outboard end of the spindle is fitted to an outboard-bearing in a screw-plug *q* fitted removably in the wall of the cover and having a central hole to receive the rounded end of the spindle. The withdrawal of the screw-plug permits the spindle to be slipped endwise out of the socket in the barrel *j*. This serves as a means of connecting or disconnecting the hammer-actuating mechanism with the barrel in assembling the parts of the device. The sleeve, owing to the arrangement of the parts is of considerable length, and is made with a cylindrical bore to fit the spindle loosely and adapt it to pass over the squared portion of the same, which is fitted only to the dog *f*.

In Fig. 2, a key *g* is shown inserted through a slot *h'* the barrel *j*, with a bit *g'* of sufficient length to push the spindle away from the lock about a quarter of an inch, thus moving the slide and the hammer-head that distance from their innermost position.

The parts are shown in the same position in Fig. 4; but in Fig. 5 the slide is shown retracted and the sleeve in contact with the flange *k*.

Fig. 2 shows the dog *f* in position for the withdrawal of the key, and as such a key can only be withdrawn when the barrel is in its initial position, it is evident that the dog cannot be turned or the hammer actuated except by a key, which will shift the tumblers and permit the rotation of the barrel.

Figs. 1 and 4 show the dog rotated and the spring partially depressed thereby.

Fig. 7 shows the lock-case in section adjacent to the barrel as well as the barrel, the sleeve, and the bearing which sustains the sleeve upon the slide.

The bit of the key is not adapted to operate upon the hammer-spring, but the hammer-actuating mechanism is separate from the key and intermediate to the lock and the hammer-spring.

To prevent the turning of the dog backwardly, the flange *k* is formed with ratchet notches, and a pawl *r* is pivoted upon the lock-case and pressed normally toward the notches by a spring *l'*. One of the notches is arranged, when contacting with the pawl to set the barrel in exact position required to insert or withdraw the key; thus aiding the operator to set the barrel in the right position, which is effected by turning the barrel backwardly if turned beyond its normal position.

One of the ways *b*, *b'*, is made longer than the slide and has a stop-bar *t* at its farther end. This way is secured to the cover by screws *v*. The opposite way *b'*, as shown in Fig. 2, is made shorter and secured to the bottom of the cover by screws *v'*.

When the key is removed from the slot *h'* the slot forms an opening from the exterior to the interior of the cover B, and any object passed through the slot can move the sleeve lengthwise upon the spindle *l*, but is incapable of rotating the same to actuate the hammer until the barrel is unlocked by which the spindle is controlled.

A suitable key to actuate the tumblers is necessary for the rotation of the barrel, but even then the key is not the direct instrument for actuating the hammer, but the spindle and sleeve form the intermediate agencies; the spindle being immovable longitudinally and the sleeve being shifted upon it by the various keys in the series employed to impress the time-card at different distances from the center.

It will be understood that the attachment of the hammer-head to a spring enables the hammer to strike an instantaneous blow, and at once recede from the time-card so that it does not act as a brake or in any degree retard the clock-movement, or lacerate the card.

A safety knife is shown at *y* in Figs. 2 and 4, which is commonly used in such time-detectors to cut through the edge of the card when the cover is closed upon the case. The hammer upon such safety knife operates when the cover is opened to cut the card in a different place, owing to the rotations of the card in the interim, and if more than two of such knife cuts appear upon the edge of the card, it indicates that the cover has been opened surreptitiously.

Having thus set forth the nature of the invention what is claimed herein is:

1. In a time-recorder, the combination, with a spring-hammer, of a tumbler-lock having a rotatable barrel with a spindle extended therefrom and means upon the spindle for actuating the hammer, the barrel having a slot, and a key extended through the slot and adapted to shift the tumblers and then turn the barrel and spindle for actuating the hammer.

2. In a time-recorder, the combination, with the cover of the recorder, of a slide movable across the cover carrying a spring-hammer and having a bearing at the side of such hammer, a sleeve journaled in such bearing and having a dog adapted to operate the hammer, a lock-case within the cover at one end of the slide with a rotary barrel having a spindle extended through the sleeve and held from longitudinal movement, and the sleeve having a sliding engagement with the spindle to be rotated thereby when moved to different positions by a series of keys.

3. In a time-recorder, the combination, with a case containing a clock and time-card, of a hollow hinged cover upon the clock-case, a lock-case at one side of the cover with a rotary barrel therein having a spindle extended therefrom across the cover and a key-slot at the side of the barrel, a slide movable in the cover parallel with the spindle and carrying a hammer-spring with hammer-head thereon and a sleeve fitted upon the spindle and provided with a dog to actuate the hammer-spring, and a key adapted to extend through the key-slot to contact with the sleeve and thereby shift the slide and hammer-head to an operative position before rotating the barrel.

4. In a time recorder, the combination, with a case containing a clock and time-card, of a hollow hinged cover upon the clock-case, a lock-case at one side of the cover with a rotary barrel therein having a longitudinal key-slot at one side and a spindle projected from the barrel across the cover, a slide movable within the cover parallel with the spindle and carrying a hammer-spring with a hammer-head thereon, a bearing upon the slide and a sleeve swiveled in the bearing and fitted to the spindle and provided with a dog to engage the hammer-spring, and a key fitted to the slot in the barrel and adapted to rotate the barrel with the spindle and sleeve, and the bit of the key adapted to force the sleeve endwise to set the hammer-head in the desired position before turning the barrel.

5. In a time-recorder, the combination, with a case containing a clock and time-card, of a hollow hinged cover upon the clock-case, a lock-case at one side of the cover with a rotary barrel therein and a spindle extended therefrom across the cover and a key-slot in the barrel at one side of the spindle, the farther end of the spindle being squared as set forth, a slide movable in the cover parallel with the spindle and carrying a hammer-spring with hammer-head thereon, a spring drawing the slide normally toward the lock, a bearing upon the slide, a sleeve fitted to the spindle and swiveled in the bearing and provided adjacent to the hammer-head with a dog fitted slidably to the square of the spindle, and a key adapted to extend through the key-slot and having a bit to contact with the end of the sleeve and thereby shift the slide and hammer-head to an operative position before rotating the barrel.

6. In a time-recorder, the combination, with a case containing a clock and time-card, of a hollow hinged cover upon the clock-case, guides within the cover having a slide fitted thereto with a hammer-spring attached at one end to the slide and provided at the opposite end with a hammer-head movable with the slide radially of the cover, a lock-case within the cover near one end of the slide, a barrel journaled therein with a flange upon its inner end, a central spindle extended axially therefrom across the cover at one side of the hammer-spring at the level of the same, a spring drawing the slide normally toward the lock-case, a bearing upon the slide adjacent to the hammer-head, a sleeve fitted to the spindle and journaled in the bearing and provided next the lock with a shoulder and next the hammer-head with a dog to vibrate said head, the barrel having a key-slot at one side of the spindle, a key fitted to the said slot in the barrel having a bit to contact with the shoulder of the sleeve to longitudinally shift the slide and hammer-head to an operative position before rotating the barrel, and means for engaging the sleeve with the spindle in the longitudinal movement of the sleeve.

7. In a time-recorder, the combination, with a case containing a clock and time-card, of a hollow hinged cover upon the clock-case, guides within the cover having a slide fitted thereto with a hammer-spring attached at one end to the slide and provided at the opposite end with a hammer-head movable with the slide radially of the cover, a lock-case within the cover near one end of the slide, a barrel journaled therein with a flange upon its inner end having a socket to engage a spindle, an outboard bearing longitudinally adjustable upon the opposite side of the cover with socket for the spindle therein, a spindle engaged detachably with the flange of the lock-barrel and pivoted in the outboard bearing and squared adjacent to such bearing, a bearing upon the slide encircling the spindle, a sleeve fitted movably to the spindle and journaled in such bearing and provided next the lock with a shoulder and next the hammer-head with a dog, the dog being fitted to the square of the spindle to rotate therewith, and a key adapted to extend through the key-slot and having a bit to contact with the end of the sleeve and thereby shift the slide and hammer-head to an operative position before rotating the barrel.

8. In a time-recorder, the combination, with a case containing a clock and time-cards, of a hollow hinged cover upon the clock-case, a lock at one side of the cover with a rotary barrel therein having a ratchet-flange upon its inner end, a spindle extended therefrom across the cover, a slide movable in the cover parallel with the spindle and carrying a hammer-spring with hammer-head thereon, a sleeve journaled upon the slide and fitted movably upon the spindle and provided next the lock with a shoulder and next the hammer-head with a dog to actuate the same, the barrel having

a key-slot, a series of keys adapted each to extend through the slot with a bit to press upon the shoulder of the sleeve, and a pawl engaging the ratchet-flange and preventing the backward rotation of the barrel as set forth.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

ROBERT KOPP.

Witnesses:
L. LEE,
THOMAS S. CRANE.