

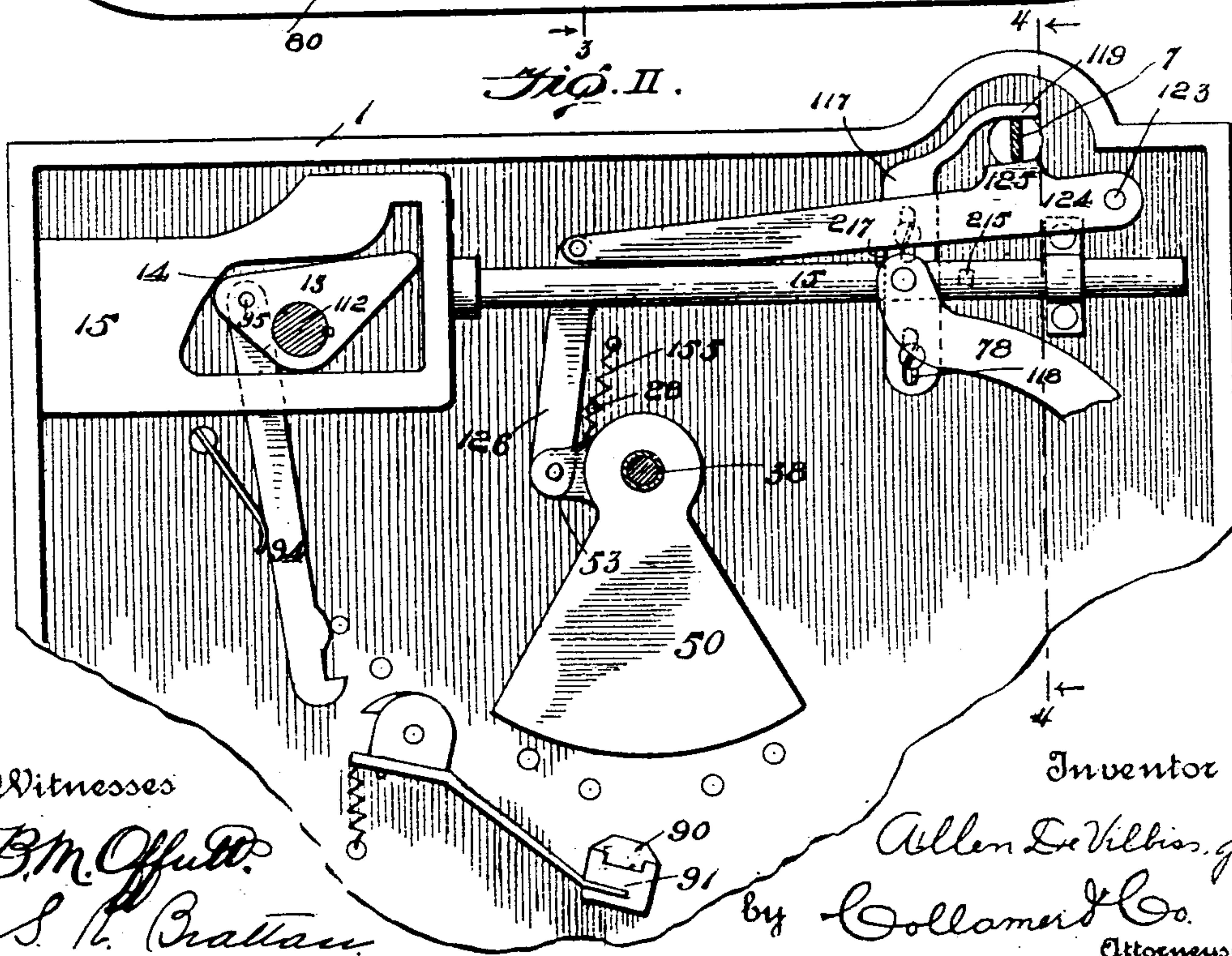
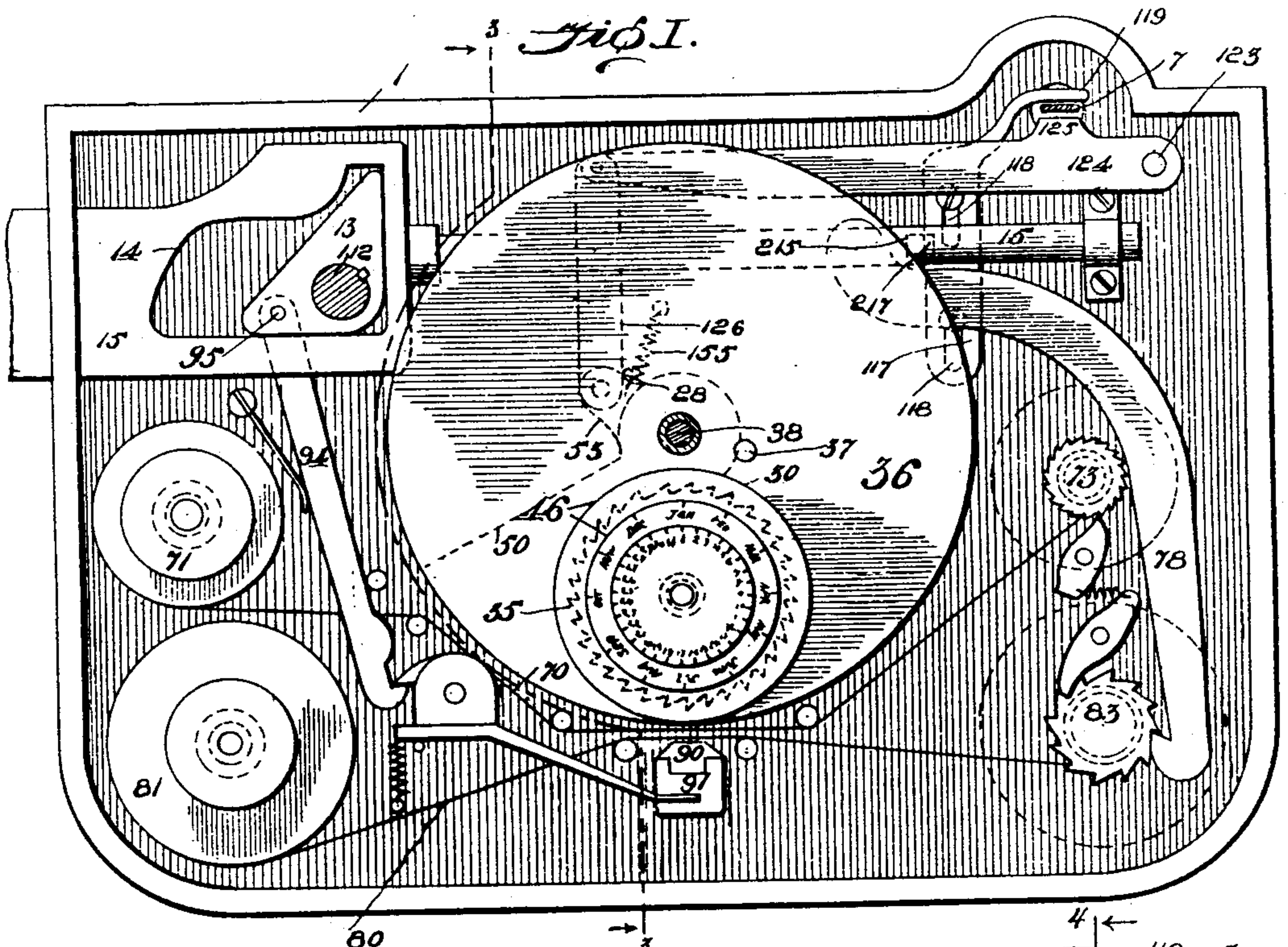
No. 831,544.

PATENTED SEPT. 25, 1906.

A. DE VILBISS, JR.
RECORDING LOCK.

APPLICATION FILED SEPT. 29, 1903.

2 SHEETS—SHEET 1.



Witnesses

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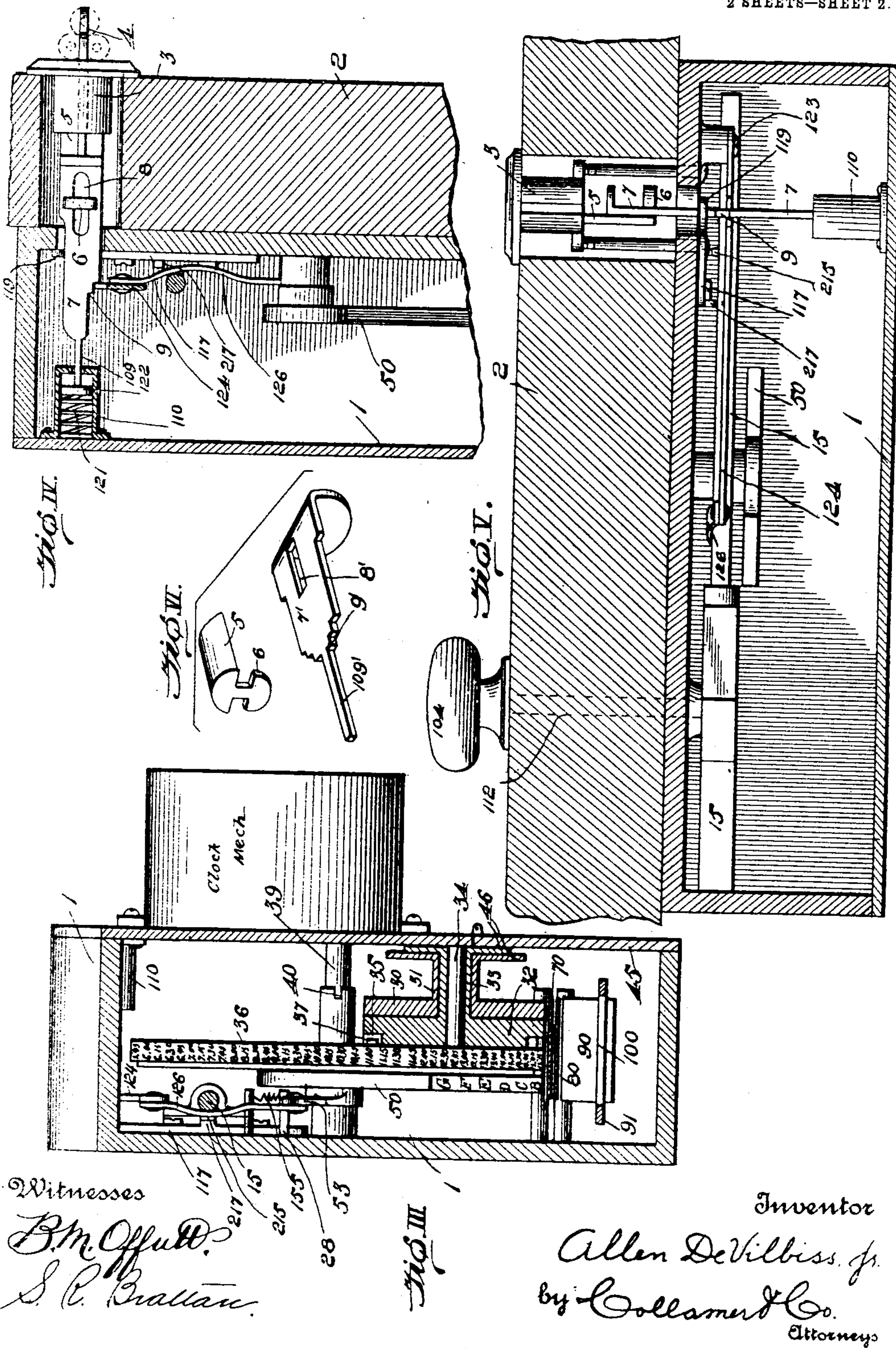
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RECORDING LOCK.

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2 SHEETS—SHEET 2.



UNITED STATES PATENT OFFICE.

ALLEN DE VILBISS, JR., OF TOLEDO, OHIO, ASSIGNOR, BY MESNE ASSIGNMENTS, OF ONE-THIRD TO JOHN F. PIXLEY, ONE-THIRD TO ALICE S. WELLS, ONE-SIXTH TO MARTHA S. PARK, AND ONE-SIXTH TO CLARENCE H. PUMPHREY, OF COLUMBUS, OHIO.

RECORDING-LOCK.

No. 831,544.

Specification of Letters Patent.

Patented Sept. 25, 1906.

Application filed September 29, 1903. Serial No. 175,015.

To all whom it may concern:

Be it known that I, ALLEN DE VILBISS, JR., a citizen of the United States, and a resident of Toledo, Lucas county, State of Ohio, have
5 invented certain new and useful Improvements in Recording-Locks; and my preferred manner of carrying out the invention is set forth in the following full, clear, and exact description, terminating with claims
10 particularly specifying the novelty.

This invention relates to recorders, more especially to that class known as "recording-locks," such as are actuated by any one of
15 several individuals; and the object of the same is to produce a recording-lock which each time it is operated will furnish a correct record of the hour and minute when such operation occurred and a correct record of the identity of the means employed to operate it.

20 The present invention is the adaptation to an independently-operated bolt-lock of the principle set forth in my companion application for patent bearing Serial No. 171,256, to which reference is made. In that case not
25 only was the record made by the turning of the key, but that movement also operated the bolt. In the present case the turning of the key makes the record; but the bolt is operated by independent means, such as a
30 knob, and stops are present to prevent the bolt from being moved unless the key has first been inserted and turned. Much of the mechanism described in my companion application is present in this one. All of it
35 could be employed, excepting for the changes hereinafter described and which bear reference-numerals of three figures each; but, on the other hand, I do not confine myself in this instance to the use of the details set
40 forth in the other case, because it is obvious that other details of construction could be employed and arranged to combine or cooperate with those features which are novel to the present application.

45 The present invention is a recording-lock which by its construction adopts to a certain extent the principle of the permutation or combination lock—that is to say, there is one mechanism for moving the bolt and there is
50 another mechanism for locking and releasing the bolt in order that the latter can be

moved. The first of these mechanisms corresponds with the knob of a permutation-lock, and the second with the tumblers and their operating means. In the present case
55 I have shown the first of these mechanisms as operated by a knob, although it will be understood that any other means could be employed for that purpose. The second of these mechanisms is operated by a key, al-
60 though here again any other suitable means could be employed, providing it is adapted to first set a differentiating member and then turn it. Said member has a varying dimension, and when it is set this dimension controls a designator, so as to indicate the person who set said member. In the present
65 case there is also a recording mechanism cooperating with the designator and actuated by the bolt-moving mechanism. From this outline it will be observed that the gist of the present invention is the combination, with one mechanism for moving the bolt and another mechanism for checking the movements of the bolt, of a designating or recording
75 mechanism so connected with and operated by the moving mechanisms as to designate the person who has manipulated the lock. For purpose of illustration the following specification describes one application of
80 this idea.

In the accompanying drawings, Figure I is an elevation of this lock with the inner face-plate removed and the bolt shot. Fig. II is a similar elevation with the bolt retracted,
85 omitting the inking mechanism and the paper and their rolls, as well as all the wheels of the recorder, and hence showing the segment and its operating mechanism in full lines. Fig. III is a vertical section on the line 3 3 of
90 Fig. I viewed in the direction of the arrow. Fig. IV is a partial section on the line 4 4 of Fig. II, also viewed in the direction of the arrow. Fig. V is a horizontal section taken just beneath the top plate of Fig. II, omit-
95 ting the recording and printing mechanisms, as also does Fig. IV. Fig. VI shows in perspective a modified form of slide and that end of the bracket having the stud on which it moves.

The lock illustrated herein comprises a casing 1, secured to the inner side of the door

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or frame 2, which latter is bored to receive a tumbler-tube 3, as of the Yale pattern. The key 4 passes through this tube and operates the tumblers therein in the well-known manner. In one form of embodiment of my invention I propose to employ keys of different lengths as the means to be recorded and each of which is adapted to control the operation of certain parts of the apparatus according to the length of such keys, as will appear more fully hereinafter. Therefore the length of the inner projecting end of the key has an important bearing on the present invention. Attached to the inner end of said tube 3 is a bracket 5, having a projecting headed stud 6. 7 is the differentiating member, here shown as a slide, having a slot 8 engaging the shank of said stud, and its outer end is bent at an angle or so formed as to stand in the path of the inner end of the key. Hence when the latter is pushed into place the slide is pushed inward to a degree corresponding to the length of the key. The inner end of the slide has a varying dimension. As shown herein, it is tapered, as at 9, (preferably in steps,) and operates in conjunction with a spring of any type which will answer. This slide may be of different shape, however, it being merely necessary that some one of its dimensions shall be variable, so that when properly manipulated the designating device will be brought to the correct position. In the present instance its tip or point 109 is reduced and enters the end of barrel 110, in which is located an expansible spring 121, pressing a disk 122 forward, and when the point 109 engages this disk the spring is compressed. Its expansive force obviously tends to throw the slide in a direction opposed to the pressure of the key.

In Fig. VI, I have shown in perspective a modified form of slide 7', which is provided with a slot 8' and tip or point 109', similar to the slide shown in Fig. IV and above described; but instead of the varying dimension or taper 9, (preferably in steps,) as in the construction above described, being formed only on one edge of the slide said taper or varying dimension (preferably in the form of a plurality of steps) is formed on both edges of the slide in the form thereof shown at 9' in Fig. VI.

The bolt-operating mechanism is independent of the differentiating member and its mechanism. As illustrated in the accompanying drawings, 104 is a knob whose shaft 112 is fast in a cam 13, here shown as triangular in contour, and this cam operates within an opening 14 in the bolt 15, whereby the latter is shot or retracted by the movements of the knob. The shank of the bolt slides in suitable guides and is provided with a stop 215.

The principal difference between the pres-

ent case and its companion lies in what I shall now describe.

117 denotes an upright bar having slots 118, moving over guide-pins, and a nose 119 at its upper end extending above the slide 7. On this bar is a check 217, adapted when the bar descends by gravity to stand in the path of the stop 215 on the bolt, and thus prevent the latter from moving. Hence when the key is turned the slide 7 turns with it, the nose 119, which extends over the slide, is raised, and the bolt is free to be moved. Pivoted at 123 is a lever 124, having a lug 125, which stands beneath a step 9 of the slide when the latter is pressed in, and is therefore depressed with it. The other end of this lever 124 is connected by a link 126 with an ear 53 on a segment 50, which is pivoted at 38 and constitutes the person-designator or key-indicator. Hence the turning of the slide and the descent of the lever swings the segment against the tension of its spring 155, which normally holds the ear 53 against a stop 28, as seen. For the purpose of producing a record the working edge of this segment is provided with proper printing characters for a purpose to appear below.

In the present instance the time-indicator includes wheels or dials which give the month, the date, and the hour and fractions thereof, while the key-indicator is a segment which prints letters or characters indicating exactly the key that was used. I desire it understood that while I have herein shown and described an inking mechanism, I could indent a tape or card, and thus avoid the use of ink, or I could perforate the letters or employ any of the well-known means for producing a permanent record.

The time-indicator in the present case comprises a month-wheel 30, having a tubular shaft 31, (this wheel is set by hand in the present case,) a date-wheel 32, whose shaft 33 is also tubular and is journaled within the shaft 31, a stub-shaft 34, on which these nested shafts are journaled, a ratchet 35 on the outer face of this date-wheel and having thirty-one teeth, and an hour-wheel 36, having a pin 37, which at each complete revolution turns the date-wheel one step. By preference I make the hour-wheel 36 of considerable size and provide it with characters which will print not only the hour but the quarters of an hour or even finer divisions, if desired, while the peripheries of the other wheels are provided with characters necessary to perform their proper functions. The shaft 38 of the hour-wheel stands above and extends across the other wheels and is suitably supported. At its inner end it is provided with a coupling 40, which connects it with the driving-shaft 39 of the clock mechanism, (indicated in Fig. III,) but unnecessary to show in detail. Said mechanism is removable, and when it is removed the coupling 40 per-

mits the disengagement of the two shafts. For the purpose of setting the month-wheel (and the date-wheel when there are less than thirty-one days in the month) I provide a door 45 in the back of the casing 1 to afford access to said wheels, and I provide means whereby said wheels may be rotatively actuated independently of the operation of the clock-actuated mechanism. In the particular form shown, to which, however, I do not desire to be limited or restricted, I provide the inner ends of the tubular shafts 31 and 33 with dials 46, which are inscribed with the twelve months and the thirty-one days, respectively, opposite their like printing characters.

The printing mechanism, here shown as merely one form of mechanism for accomplishing the desired object, but to the specific construction of which, however, my present invention is not to be limited or restricted, comprises an inking-ribbon, a paperstrip, and means for feeding them both, and the platen and means for operating it. 70 is the ribbon leading from the spool 71 to that numbered 73. 80 is the paper leading from the spool 81 to that numbered 83. 78 is the lever for turning the spools. 90 is the platen, mounted on a hammer 91, having a hole 100, through which the paper passes, and 94 is a hook pivoted at 95 to the cam 13, which hook operates the hammer.

What is claimed as new is—

1. In a recording-lock, the combination with a slide, keys of different lengths by which it is adapted to be borne inward to various extents, and means for pressing the slide in the opposite direction, a portion of the slide being tapered; of the lock mechanism operated by a knob, record-setting mechanism engaging said tapered portion and operated by the turning of the slide, and a printing mechanism.

2. In a recording-lock, the combination with a key a bracket secured to the tumbler-tube, a stud on the bracket, and a slide having a slot engaging said stud, its outer end standing in the path of the key and its inner end being tapered; of the lock mechanism operated by a knob, record-setting mechanism engaging said tapered portion and operated by the turning of the slide, and a printing mechanism.

3. In a recording-lock, the combination with a slide, keys of different lengths by which it is adapted to be borne inward to various extents, and means for pressing the slide in the opposite direction, a portion of the slide being tapered; of the lock mechanism operated by a knob, the record mechanism, a lever connected therewith and extending across said tapered portion whereby the record mechanism is set by the turning of the slide, and a printing mechanism.

4. In a recording-lock, the combination

with a slide, keys of different lengths by which it is adapted to be borne inward to various extents, its inner end being tapered, a cam for operating the lock mechanism, a knob whose shaft is fast in the cam, a tubular barrel, and a spring-pressed disk within the barrel pressing the slide normally toward the keyhole; of record-setting mechanism including a lever extending across the slide and operated by the turning of the latter, and a printing mechanism.

5. In a recording-lock, the combination with a slide, keys of different lengths by which it is adapted to be borne inward to various extents, its inner end being stepped, a knob for operating the lock mechanism, a tubular barrel, and a spring-pressed disk within the barrel; of record-setting mechanism including a lever extending across the stepped portion of the slide and operated by the turning of the latter, and a printing mechanism.

6. In a recording-lock, the combination with a slide, keys of different lengths by which it is adapted to be borne inward to various extents, its inner end being stepped and pointed, a knob for operating the lock mechanism, a tubular barrel, and a spring-pressed disk within the barrel and pressing the point of the slide toward the keyhole; of a record-setting lever extending across the stepped portion of the slide and operated by the turning of the latter, and a printing mechanism.

7. In a recording-lock, the combination with a key, with a bracket secured to the tumbler-tube, a headed stud on the bracket, and a slide having a slot engaging the shank of said stud, its outer end standing in the path of the key and its inner end being stepped; of the lock mechanism operated by a knob, the record mechanism including a lever adapted to be engaged by one of the steps, a printing mechanism, and a spring bearing the slide normally toward the key.

8. In a recording-lock, the combination with the bolt, and the record mechanism; of a key, record-setting mechanism operated by the key, devices for preventing the movement of the bolt, and mechanism for tripping said devices, said mechanism being also operated by the key.

9. In a recording-lock, the combination with the bolt having a stop, and the record mechanism; of a key, record-setting mechanism operated by the key, devices engaging said stop and preventing the movement of the bolt, and mechanism for tripping said devices, said mechanism being also operated by the key.

10. In a recording-lock, the combination with a bolt having a stop, and the record mechanism; of a key, record-setting mechanism operated by the key, and a bar movable across the bolt and having a check adapted

to engage the stop on the bolt and check the movement of the latter; this bar being also operated by the key.

11. In a recording-lock, the combination with a bolt having a stop, and the record mechanism; of a key, record-setting mechanism operated by the key, and an upright bar movable in guides across the bolt and having a check adapted normally to engage the stop on the bolt to prevent the movement of the latter, and a nose on said bar operated by the key and raised when the latter is turned.

12. In a recording-lock, a key, the knob-operated bolt, a bolt-locking mechanism tripped by the movement of the key, and the record mechanism; combined with record-setting mechanism consisting of a lever swung by the turning of the key, and a link connecting said lever with the record mechanism.

13. In a recording-lock, a knob-operated bolt, a bolt-locking mechanism, and the record mechanism; combined with the record-setting mechanism consisting of a lever, and a link connecting said lever with the record mechanism; a key, and a slide moved by the key and adapted when turned to simultaneously trip the bolt-locking mechanism and operate the record-setting mechanism.

14. In a recording-lock, a knob-operated bolt, a bolt-locking mechanism, and the record mechanism; combined with record-setting mechanism consisting of a lever, and a link connecting said lever with the record mechanism; a key, and a slide adapted to be pressed inward and turned by the key, its body being stepped whereby one of said steps actuates the record-setting mechanism while the other edge of the slide simultaneously trips the bolt-locking mechanism.

15. In a recording-lock, the combination with the knob-operated bolt, and the printing mechanism operated thereby; of a key and the record mechanism operated by the key.

16. In a recording-lock, the combination with a plurality of keys, the knob-operated bolt, and the printing mechanism operated thereby; of the record mechanism operated by a key, the same consisting of a key-recorder to designate the particular key employed, and a time-recorder to designate the moment of its use.

17. In a recording-lock, the combination with a plurality of keys, the knob-operated bolt, and the printing mechanism operated thereby; of the record mechanism operated by a key the same consisting of a key-recorder comprising a segment provided with printing characters to designate the key employed, and a series of wheels to designate the moment of its use, the segment being set by the turning of a key and the wheels being set by a clock mechanism.

18. In a recording-lock, the combination

with a key, the knob-operated bolt having a check, and a bar having a stop adapted to engage the stop on the bolt and to be lifted out of engagement by the turning of the key; of record mechanism also set by the turning of the key, and a printing mechanism.

19. In a recording-lock, the combination with a plurality of keys, the knob-operated bolt having a check, and a bar having a stop adapted to engage the stop on the bolt and to be lifted out of engagement by the turning of a key; of record mechanism consisting of a segment having printing characters to designate the key employed and set by the turning of the key and a time mechanism set by a clock, and a printing mechanism actuated by the movements of the bolt.

20. In a recording-lock, the bolt, a knob-operated cam for moving the bolt, and a printing mechanism operated by the cam; combined with a key, and recording mechanism set by the turning of the key.

21. In a recording-lock, the bolt, a knob-operated cam for moving the bolt, and a printing mechanism operated by the cam; combined with a key, recording mechanism set by the turning of the key, and feed mechanism operated by the bolt.

22. In a recording-lock, the bolt, a knob-operated cam for moving the bolt, a printing mechanism operated by the cam, a time-record, and a clock for driving it; combined with a key, and a key-record set by the turning of the key.

23. In a recording-lock, the bolt, a knob-operated cam for moving the bolt, a printing mechanism operated by the cam, a time-record, and a clock for driving it; combined with a key, a key-record set by the turning of the key, and feed mechanism operated by the bolt.

24. In a recording-lock, the combination with the time-record including month, date, and hour and fraction wheels, the key-record including a segment having printing characters alongside those on said wheels, and means for alining these records by the turning of the key; of a key, a bolt, a knob for operating it, and printing mechanism operated by the movement of the bolt.

25. In a recording-lock, the combination with the time-record including month, date, and hour and fraction wheels, the key-record including a segment having printing characters alongside those on said wheels, and means for alining the records by the turning of the key; of a key, a bolt, a knob for operating it, printing mechanism operated by the movement of the bolt in one direction, and feed mechanism operated by its movement in the other direction.

26. In a recording-lock, the combination with a slide, keys of different lengths by which it is adapted to be borne inward to various extents, and means for pressing the

slide in the opposite direction, a portion of the slide being tapered; of the lock mechanism, means for operating it independently of said keys, recording mechanism engaging
5 said tapered portion and operated by the turning of the slide, and a printing mechanism.

27. In a lock, the combination with a bolt, means for moving it, and a bolt-locking device;
10 of separate mechanism for moving said bolt-locking device, and a designator controlled by said mechanism whereby is designated the person who actuated said mechanism.

28. In a lock, the combination with a bolt, means for moving it, and a bolt-locking device;
15 of separate mechanism for moving said bolt-locking device, a designator controlled by said mechanism whereby is designated the person who actuated said mechanism,
20 and a time-indicator.

29. In a lock, the combination with a bolt, means for moving it, and a bolt-locking device;
25 of separate mechanism for moving said bolt-locking device, an indicator set by the operation of said mechanism to designate the person who actuated it, and a recording mechanism cooperating with said indicator.

30. In a lock, the combination with a bolt, means for moving it, and a bolt-locking device;
30 of separate mechanism for moving said bolt-locking device, an indicator set by the operation of said mechanism to designate the person who actuated it, a time-indicator, and
35 a recording mechanism cooperating with said indicators.

31. In a lock, the combination with a bolt, means for moving it, and a bolt-locking device;
40 of separate mechanism for moving said bolt-locking device, an indicator set by the operation of said mechanism to designate the person who actuated it, and a recording mechanism cooperating with said indicator
and actuated by the bolt-moving means.

45 32. In a lock, the combination with a bolt,

means for moving it, and a bolt-locking device; of separate mechanism for moving said bolt-locking device, an indicator set by the operation of said mechanism to designate the person who actuated it, a time-indicator
50 moved by clock mechanism, and a recording mechanism cooperating with said indicators.

33. In a lock, the combination with a bolt, means for moving it, and a bolt-locking device;
55 of a differentiating member having a varying dimension, separate mechanism for actuating said member, a designator controlled by the position to which said member is set, and connections between said member and the bolt-locking device whereby the lat-
60 ter is tripped by the movement of the former.

34. In a lock, the combination with a bolt, means for moving it, and a bolt-locking device;
65 of a differentiating member having a varying dimension, means separate from the bolt-moving mechanism for setting said member and rotating it, a designator controlled by the position to which said member is set and actuated by the rotation of the member, and means whereby such rotation
70 trips the bolt-locking device.

35. In a lock, a closure-bolt, a movable member having a varying dimension and being adapted to be moved to different positions,
75 a designating device controlled by said member, and mechanism independent of said member for moving the bolt.

36. In a lock, the combination with a bolt, a device for designating the person operating the lock, differentiating means for controlling
80 the designating device, and mechanism, independent of said means, for moving the bolt.

In testimony whereof I have hereunto subscribed my signature this the 26th day of September, A. D. 1903.

ALLEN DE VILBISS, JR.

Witnesses:

DELLA DE VILBISS,
ALICE SAVAGE.