(No Model.) 3 Sheets—Sheet 1.

J. L. GIVEN.

TELEPHONE MECHANISM.

No. 568,346. Patented Sept. 29, 1896.

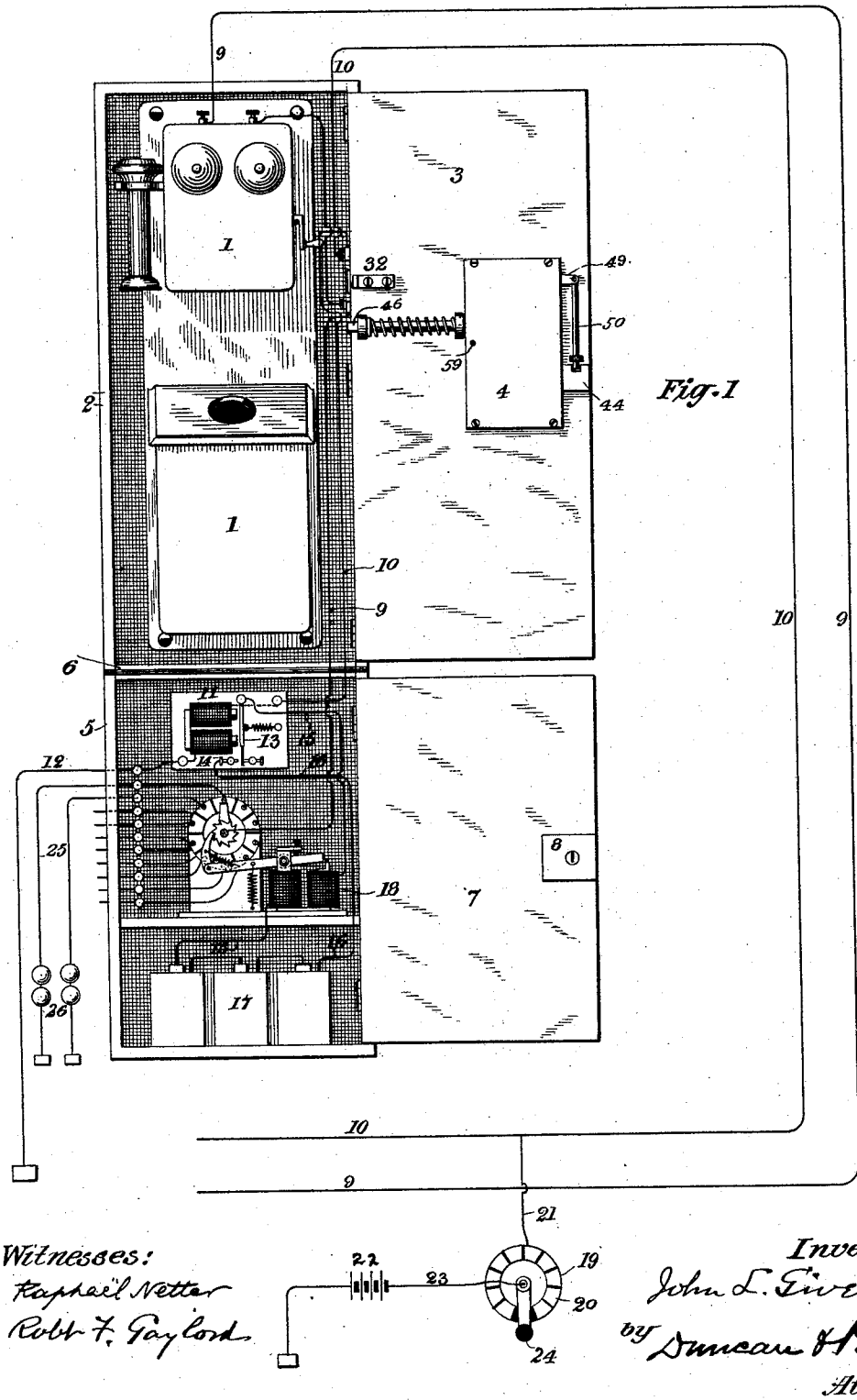

Fig. 1

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Fig. 2

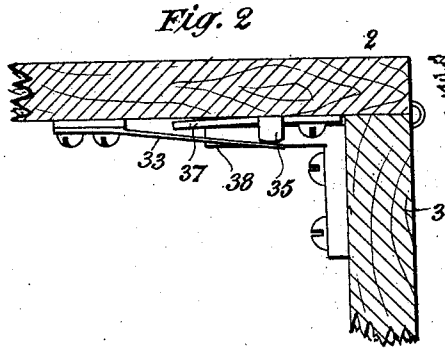


Fig. 3

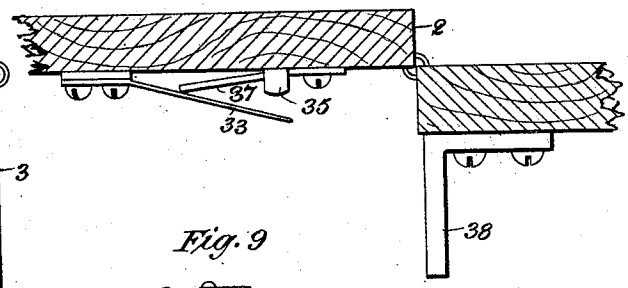


Fig. 9

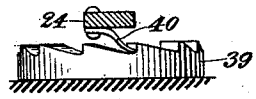


Fig. 4

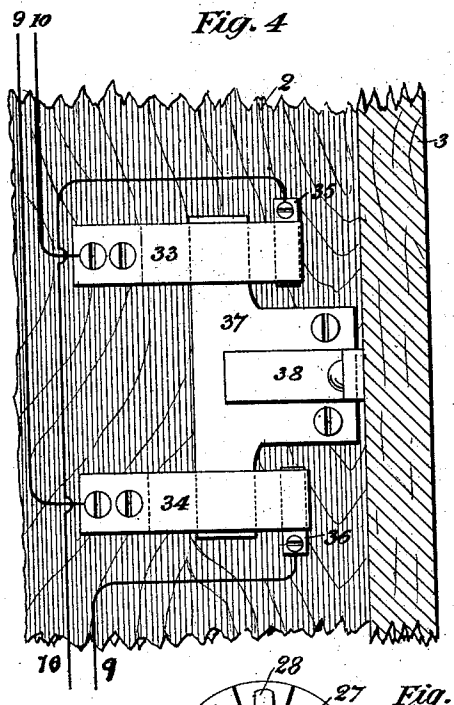


Fig. 7

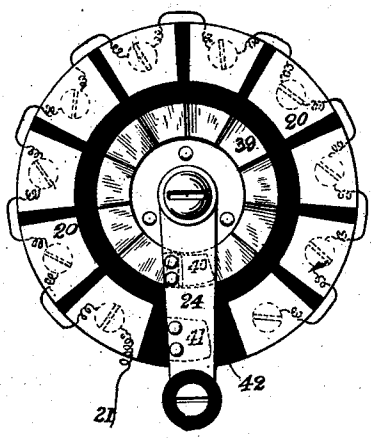


Fig. 8

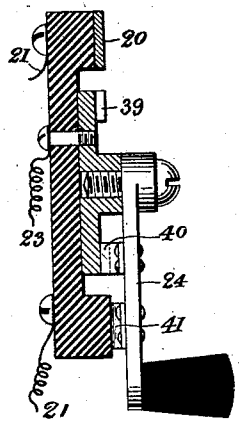


Fig. 5

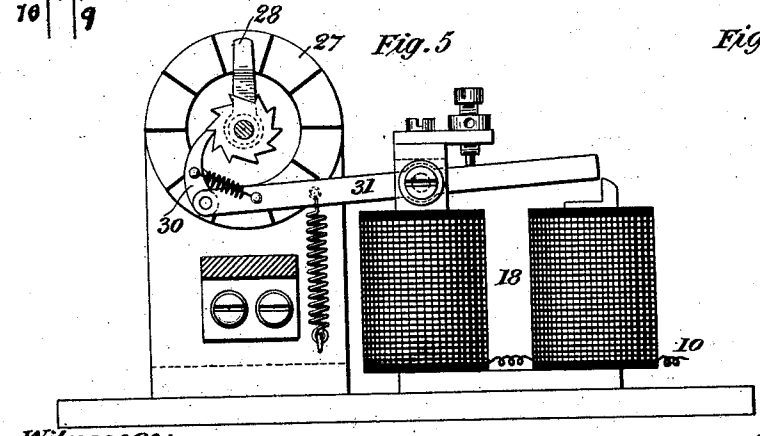
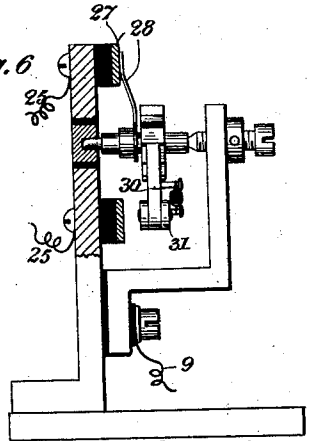


Fig. 6



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TELEPHONE MECHANISM.

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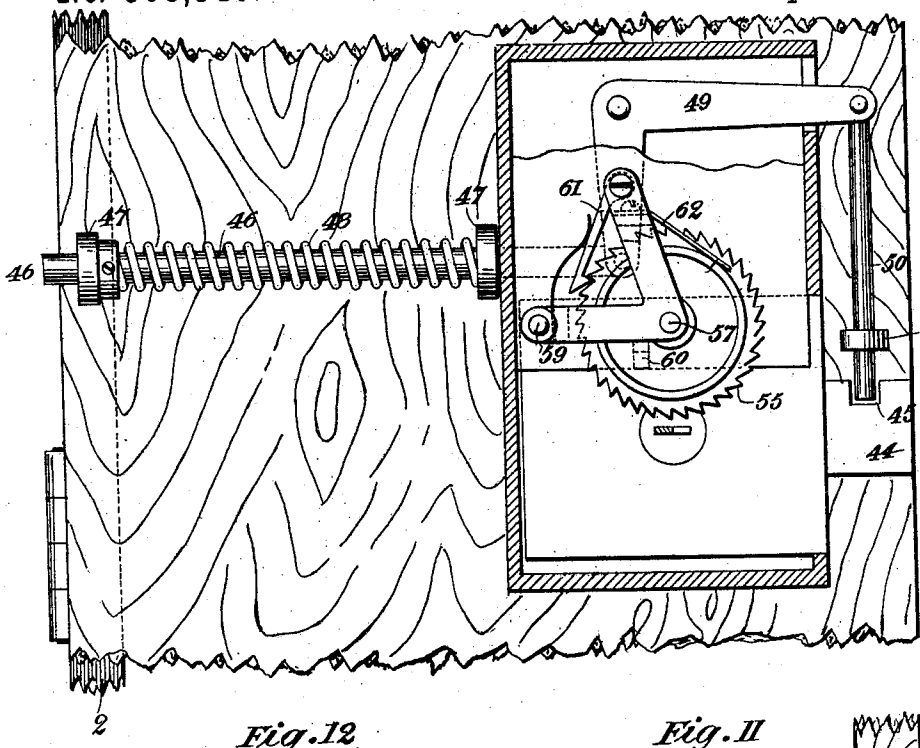


Fig. 10

Fig. 12

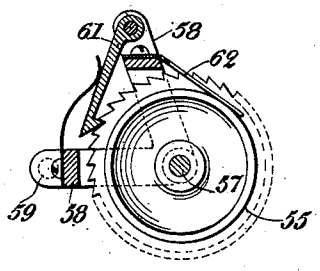


Fig. 11

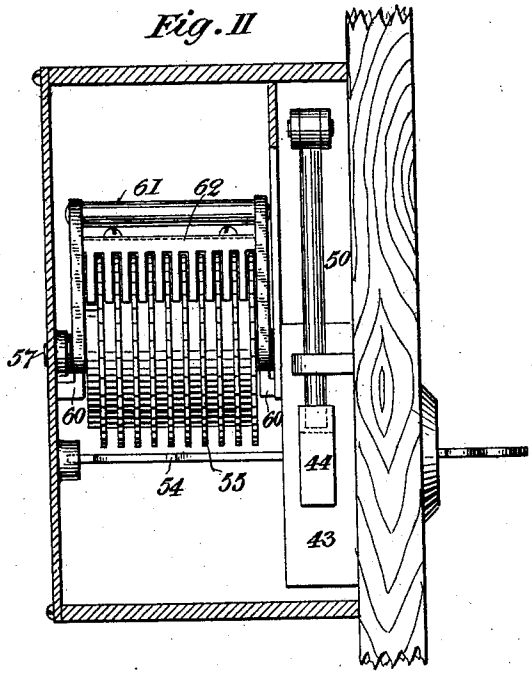


Fig. 13

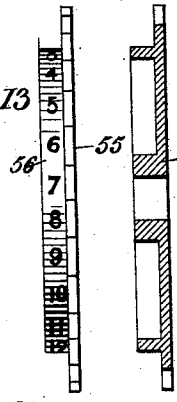
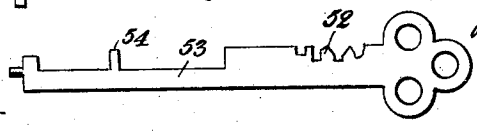


Fig. 14

Fig. 15



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UNITED STATES PATENT OFFICE.

JOHN L. GIVEN, OF STONY POINT, NEW YORK.

TELEPHONE MECHANISM.

SPECIFICATION forming part of Letters Patent No. 568,346, dated September 29, 1896.

Application filed December 6, 1894. Serial No. 530,979. (No model.)

To all whom it may concern:

Be it known that I, JOHN L. GIVEN, a citizen of the United States, residing at Stony Point, in the county of Rockland and State of New York, have invented certain new and useful Improvements in Telephone Mechanism, of which the following is a specification, reference being had to the drawings accompanying and forming a part of the same.

The present improvements relate to means for controlling a telephone transmitting and receiving mechanism and registering the employment thereof by any one of a number of subscribers having access to the same.

In illustration of the purpose and use of the invention I propose to automatically control and register the use of a telephone mechanism in such places as apartments, hotels, or the like, where one telephone instrument is used for the benefit of two or more users or subscribers.

The improvements are applicable to the use of a telephone mechanism under different conditions and in various places, but, as an example of such use, I shall herein describe the same as in the case of an apartment-house, where, for instance, it may not be desirable or economical to employ a special operator or custodian of the telephone instrument.

In further explanation, and assuming that my mechanism is placed in an apartment-house and is connected to a central station in the usual way, the general operation and use of the same is this: The telephone instrument itself, which may be of any common and suitable construction, is to be inclosed in a box or case normally locked and holding the telephone instrument confined and against public use. The various tenants are to be supplied with keys, each of which keys will open the telephone-box, so that the holder of a key may at any time have access to the telephone. The keys thus held by the tenants or subscribers are all alike as to the operation of the same to open the telephone box or case. These keys, however, each bear an extension or recording piece, such recording-piece as to any one key being differently constructed as to all other keys, so that no two keys in this respect are alike. The lock on the telephone-case is provided with a multiple recording mechanism, and each one of the keys is adapted to operate one of the recording parts of this mechanism when the door is opened by a subscriber. Thus when a subscriber uses the telephone he must unlock the case containing the same, and in so doing will leave a record of the fact that he has used the telephone once. The record device which is set up by any one subscriber cannot be affected by any other subscriber. It will be seen then that a permanent record is kept of the use of the telephone by each one of the subscribers or holders of keys. This mechanism is also constructed in manner to prevent the withdrawal of the key from the lock while the door is open. In other words, a subscriber opening the door of the telephone-case must again close and lock the same before he can regain his key. This insures that the telephone-case shall be locked at times when not in use by a subscriber.

Another feature of the invention consists in an arrangement of circuits and mechanism whereby the central office may call up at will any one of the various subscribers having right of access to the telephone.

Other features of invention will be explained in the description of the mechanism to follow, and the various elements and combinations of elements held to be new will be particularly pointed out in the claims to follow the description.

Referring to the drawings accompanying this description, Figure 1 is a general elevation view of a box or casing containing an ordinary telephone mechanism, which mechanism includes the usual receiver and transmitter as well as the signal-bell. This telephone mechanism may be of any suitable construction, and parts thereof may be omitted or located in other places than in this box or casing. The essential feature in this respect is that the parts of the telephone mechanism necessary to be handled and used in sending a message are confined in the box or casing or protected thereby, so that admission to the same can only be had by the separate parties holding keys to the box. In the lower part of the box and cut off from the top thereof is shown the calling mechanism. This part of the box is closed by a door which is normally locked, and access to the calling mechanism

can only be had by the proper telephone authorities or inspector. The two doors closing the case are in this figure shown in open position. Fig. 2 shows an enlarged detail view in horizontal section of the door and casing of the telephone-box, the door being shown as closed. Fig. 3 shows the same parts with the door open. Fig. 4 is an elevation view of the parts shown in Fig. 2. Fig. 5 is an enlarged detail view of the calling mechanism. Fig. 6 is a side elevation of the same in partial vertical section. Fig. 7 is the calling-disk, located at the central station. Fig. 8 is a central section of the same. Fig. 9 is a detail view of the latch of the same. Fig. 10 is a detail view of the inside of a door with the lock-casing in partial section and exposing the recording mechanism. Fig. 11 is a vertical section of the same looking from the right hand of Fig. 10. Fig. 12 is a detail section between the recording disks. Figs. 13 and 14 show, respectively, an elevation edge view and a central cross-section of one of the recording-disks on an enlarged scale. Fig. 15 shows a plan view of one of the keys employed.

Referring to the views of the drawings in detail, the numeral 1 represents a telephone mechanism as a whole.

2 is the box or casing containing this mechanism, and 3 is the door of the box or casing, which door is provided with a lock inclosed in the casing 4, fastened to the inside of the door.

5 is the lower portion of the casing which contains the calling mechanism, this mechanism being separated from the telephone mechanism by the partition 6, and 7 being a door provided with a lock 8, adapted to close the lower portion of the box.

9 and 10 represent the line-wires, which extend to the usual central-station annunciator and call mechanism. The line 10 enters the telephone-box and extends to and passes through the coils of the relay mechanism 11. From this relay mechanism the line runs to the ground by the branch 12. The armature 13 of the relay mechanism and contact-point thereof, 14, are in line with the wires 15 and 16, running from the battery 17, located, preferably, in the lower portion of the telephone-box. This line 13 16 includes the magnets 18 of the recording mechanism. It will be seen, therefore, that if a proper impulse is sent from the central station over the line 10 the relay will be operated to close the local circuit 13 16 and thereby correspondingly operate the calling mechanism. At the central station is located the circular switch 19, the contact-segments 20 of which are in line with the branch 21 from the line 10.

22 is a battery located at central station and preferably connected to ground there. The branch 23 of this battery is connected to the rotatable contact-arm 24, this contact-arm normally resting upon the blank point, as shown, or, in other words, the branch circuit 21 is broken. When the central-station operator desires to call a particular subscriber, the contact-arm will be turned over that number of contact-segments corresponding with the call-number of the subscriber. This will effect a series of electrical impulses which will be transmitted over the line 10 and 12, and correspondingly the calling mechanism will be set upon the subscriber's line being called. The central-station operator will then send the usual signal-call over the line 9. This call-signal will pass through the signal-bells of the telephone mechanism, as also down and through the line, through the corresponding segment of the calling mechanism, and along one of the lines 25, which extends to one of the subscriber's call-bells 26, located therein. The calling-disk 27 is composed of insulator-segments 28, each connected to one of the calling-lines 25, which lines, after passing to the call-bells 26, go to a ground connection.

29 is the rotatable contact-arm of this disk, this arm being carried with a tooth-wheel which is operated by the pawl 30 on the armature 31 of the magnet 18.

A subscriber when called will go to the telephone-box and open the upper door of the same with his special key, at the same time making a record of the fact of his so having access to the telephone-box. The subscriber will then signal to the central station in the usual manner, whereupon the central will turn the calling mechanism to normal position and proceed with the message to the subscriber in the usual way. As the subscriber opens the telephone-box the lines 9 and 10 are cross-circuited at 32, Fig. 1, by a switch mechanism which I will now describe, this cross-circuit being for the purpose of cutting off the calling mechanism in the lower portion of the telephone-box.

Referring now particularly to Figs. 2, 3, and 4, 33 and 34 are springs connected, respectively, to the lines 10 and 9, which springs, when not otherwise resisted, bear upon the contact-pieces 35 and 36, which pieces are in circuit with the extension of the lines 9 and 10 to calling mechanism. 37 is a strong spring secured to the casing under the springs 33 34 and the natural flexure of which acts to raise springs 33 34 from their contacts. Upon the door 3 is fixed a bracket-arm 38. When the door is closed, as seen in Fig. 2, this arm bears upon the spring 37 and depresses the same, so that springs 33 and 34 rest upon the contacts 35 and 36, as seen in Fig. 4. The lines 9 and 10 are therefore continued to the calling mechanism, as already explained. When the door is open, as seen in Fig. 3, spring 37 is freed, so that it lifts the springs 33 34, thus cross-circuiting lines 9 and 10 and cutting off electrical communication between said lines and the calling mechanism.

The central-station signal-setting mechanism is illustrated in detail in Figs. 6, 7, and 8, where, as above explained, 20 indicates in-

sulating contact-segments connected together in series by line-wire 21, the contact-arm 24 of which mechanism is connected to the central-station local-battery line 23. 39 is a circular ratch, toothed, as shown in Fig. 9, a spring 40, carried on the contact-arm 24, moving over said ratch in such manner as to prevent the backward motion of the arm. 41 is a contact-spring mounted on said arm, and which rubs on the contact-segments 20. By these means the central-station operator is obliged to move the contact-arm in one direction. Thus, when a subscriber is to be called, the arm is to be moved in the right-hand direction, and after such subscriber has been summoned this arm is put back upon the insulating-space 42, whereby the central-station battery is disconnected from the main line 10.

In the recording and locking mechanism carried by the door of the telephone-casing and shown in detail in Figs. 10 to 14, 12 represents the edge of the casing, to which is hinged the door 3. Upon the inner face of the door is mounted the lock 43, which is of any suitable construction. Preferably it is a flat-key or rim lock. As is understood, the key of such a lock is inserted and turned partially around in one direction to draw the bolt from locking position, and when the bolt is so drawn the key cannot be turned from the lock without turning it to its original position. 44 represents the bolt of the lock. This bolt contains a slot 45. 46 is a slide-rod carried in lugs 47, fixed to the door and bearing the spring 48, which presses against one of said lugs and against a collar fixed to the rod so as to project the inner end of the rod beyond the edge of the door when the latter is opened, as shown in Fig. 10. When the door is closed, this inner end of the rod will strike against the side of the casing and be pushed outwardly against the tension of the spring. To the rod 46 is pivoted one arm of the elbow-lever 49, the other arm of which carries the depending latch 50, which passes through a lug 51, fixed to the door. This latch is in the path of the bolt of the lock, so that when said bolt is withdrawn, as seen in Fig. 10, the latch 50 will fall in slot 45, and by thus engaging the bolt will prevent the key inserted in the lock from being withdrawn. When the door is closed, the latch will be lifted to disengage the bolt, whereupon the latter may be projected to lock the door in closed position.

In Fig. 15 I show one of the keys to the lock, which preferably is of the well-known flat or leaf form, having the shank 52, which is the part that unlocks the bolt 44 of the lock, and having the extension 53, which carries the lug 54, designed to operate the recording mechanism of the particular subscriber holding this key. The other keys will be the same as the key here illustrated except that the lug 54 will be positioned at another point on the extension of the key.

55 represents one of the recording-dials, which is toothed on its periphery, as shown, and bears a corresponding number of indicating-figures on its hub 56. Two or more of these dials are arranged upon common shaft 57, by which they are pivotally hung in the rocking frame 58, this frame and the dials mounted thereon having slight angular motion on the shaft 59, mounted in the casing of these parts. Stops 60, also fixed to the casing, hold the frame in normal position.

61 is a spring-actuated dog extending across the peripheries of the dials and engaging the teeth thereof, so as to prevent their rotation in one direction.

62 indicates friction-springs bearing upon the hub-dials and preventing their unintended rotation. The projection 54 on the keys is arranged to come into the plane of one of these dials, (see Fig. 11,) the key being substantially in position shown in this figure when it is inserted through the lock. Upon turning the key, as to the right hand, the projection thereon would engage one of the teeth on one of the dials and cause such dial to be rotated one tooth, thus setting up a number on the dial indicating the use of telephone by subscriber holding the key adapted to operate this particular dial. When the door of the casing is closed and the bolt reset to lock the door, the key on being turned backward will strike by its projection upon the bevel face of the tooth of the dial which has just been rotated one stop. This will cause the frame carrying the dials to rise and thereby permit the key to be turned backward to its first or insertion position, the frame falling upon its stops after the key has been turned from under the same.

Various modifications of these structures can be made, and therefore I do not limit myself to those shown.

What I claim as new is—

1. In combination a telephone transmitting and receiving mechanism, a lock mechanism controlling access to or use of said telephone mechanism, a plurality of recording devices adapted to be operated by different keys each of which operates said lock, whereby the holders of separate keys will individually record their use of the telephone mechanism.

2. The combination with a telephone mechanism and a box or casing inclosing the same and provided with a door or movable part giving access to the telephone, a lock mounted on the said door or movable part, and mechanism operated by the movement of said door and adapted to engage the key of the lock to prevent its withdrawal from the lock while the door is in open position.

3. In a telephone system and in combination with a telephone transmitting and receiving mechanism, a plurality of calling-lines extending each to a local subscriber or user of said telephone mechanism, a calling mechanism connected with said lines and adapted to be operated from a central or distant sta-

tion to call one of said subscribers, and a switch mechanism for disconnecting said calling mechanism from the main line and putting the said telephone mechanism into circuit with the line.

4. The combination with a telephone transmitting and receiving mechanism, a calling mechanism for two or more subscribers in the telephone-line, a casing inclosing the telephone mechanism and having a door or other movable part giving access thereto, and switch mechanism on said door adapted when the door is closed to connect said calling mechanism with the line and when the door is opened to disconnect the same and close the line through the telephone.

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