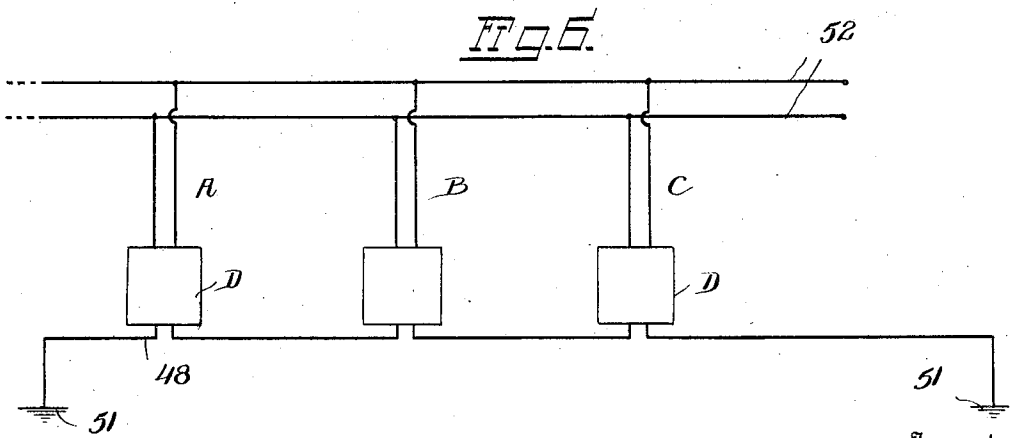
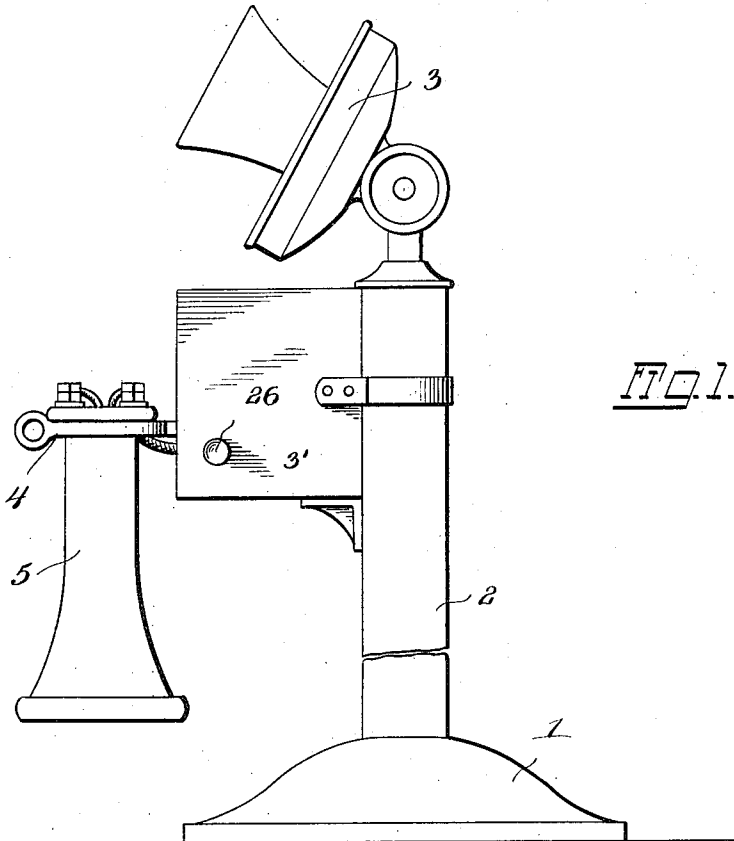


W. A. MORSE.  
TELEPHONE LOCKING SYSTEM.  
APPLICATION FILED JAN. 7, 1913.

1,069,458.

Patented Aug. 5, 1913.

3 SHEETS—SHEET 1.



Inventor

W. A. Morse.

Witnesses  
William Smith.

John J. McCarthy

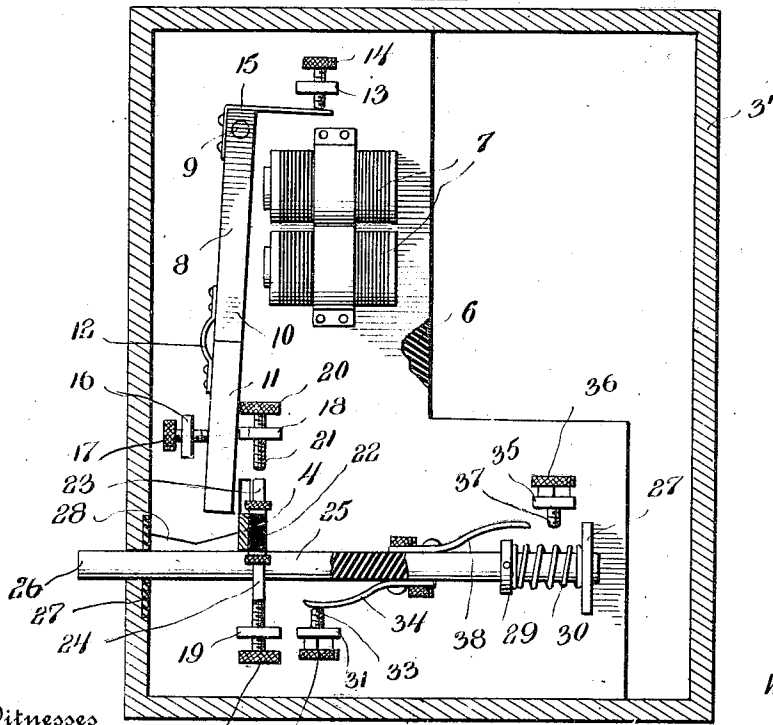
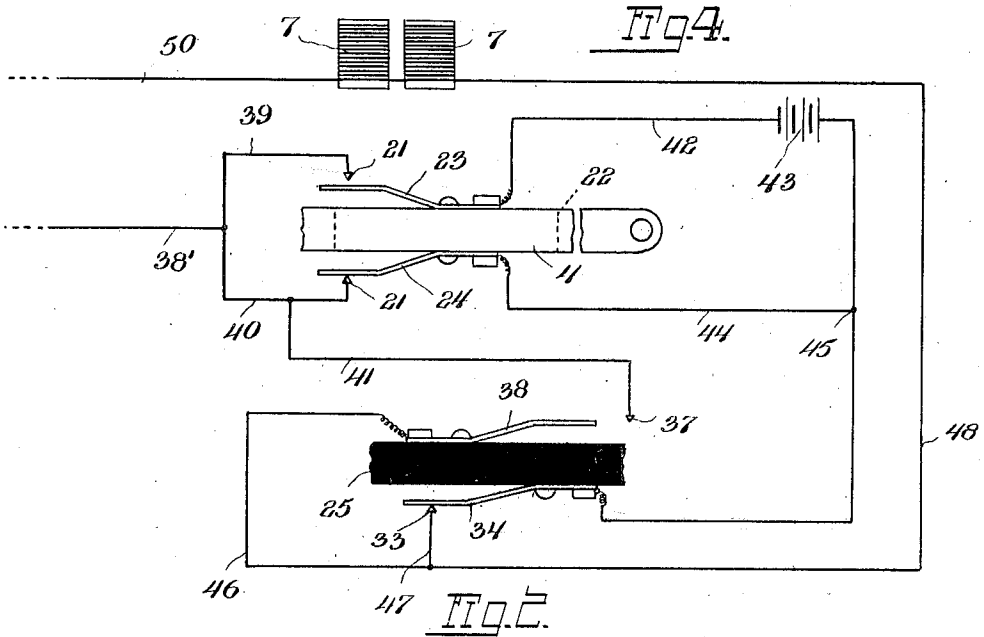
By Victor J. Evans  
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Inventor  
 W. A. Morse.

Witnesses

*William S. Smith*  
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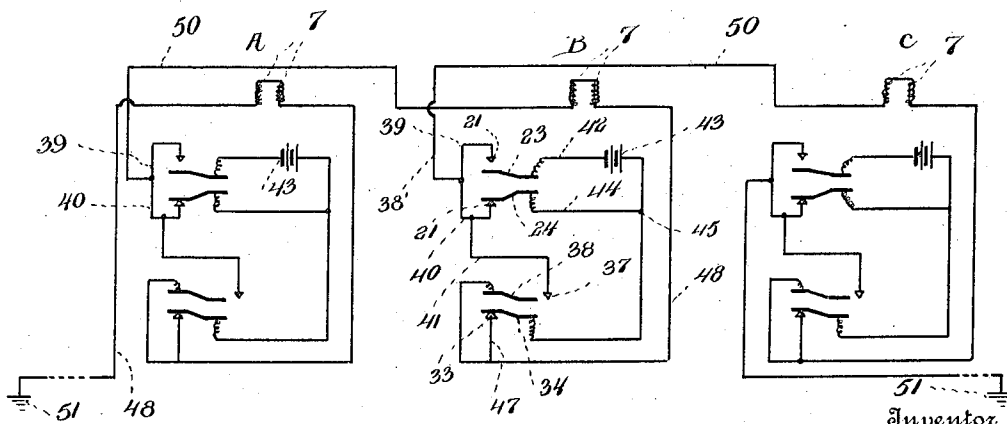
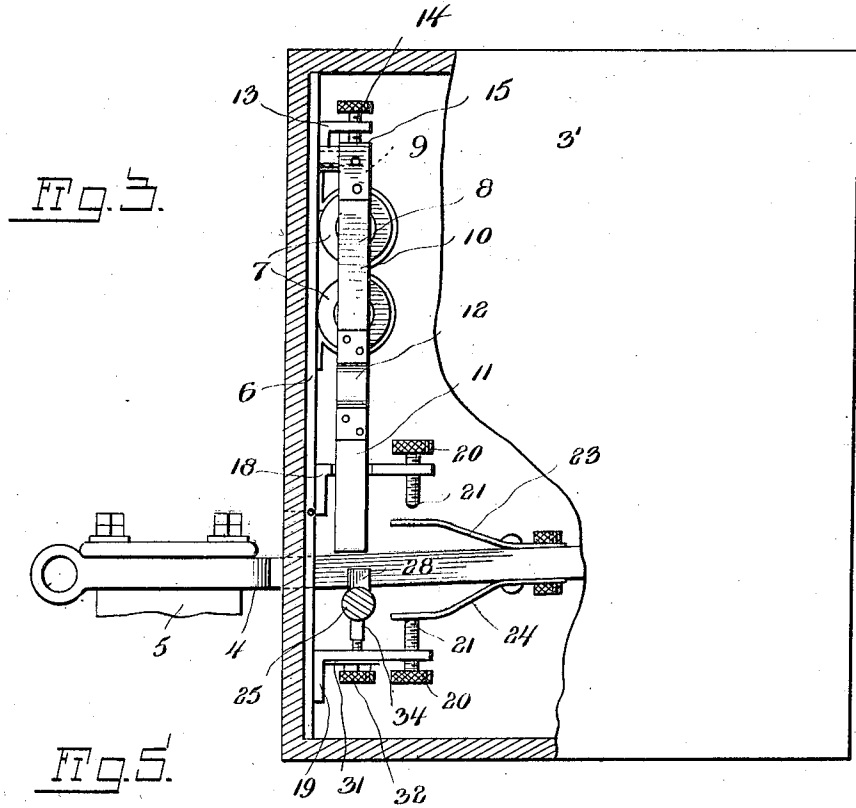
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Inventor  
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Witnesses  
 William Smith  
 John J. McCarthy

By Victor J. Evans  
 Attorney

# UNITED STATES PATENT OFFICE.

WALTER ALDEN MORSE, OF NORTH GROSVENOR DALE, CONNECTICUT.

## TELEPHONE-LOCKING SYSTEM.

1,069,458.

Specification of Letters Patent.

Patented Aug. 5, 1913.

Application filed January 7, 1913. Serial No. 740,616.

*To all whom it may concern:*

Be it known that I, WALTER ALDEN MORSE, a citizen of the United States, residing at North Grosvenor Dale, in the county of Windham and State of Connecticut, have invented new and useful Improvements in Telephone-Locking Systems, of which the following is a specification.

This invention relates to improvements in telephone locking systems and has particular application to systems of this character for use in conjunction with telephones in rural districts wherein a plurality of phones are connected to a single talking circuit or line.

In carrying out the present invention, it is my purpose to provide a telephone locking system by means of which a subscriber, when calling central to obtain communication with another subscriber's telephone set, will automatically lock all telephones on the line so as to avoid confusion and the inconveniences arising from a number of subscribers endeavoring to use the line at once.

It is also my purpose to provide a locking system for telephones whereby a subscriber, when calling central, will lock the remaining phones on the line out of service and wherein the calling subscriber may unlock the remaining phones on the line so that he may have talking communication with the called subscriber subsequent to the central operator "ringing" such subscriber.

Furthermore, I aim to provide a locking system for telephones which will embrace the desired features of simplicity, efficiency and durability coupled with cheapness of cost in manufacture and installation and which will be entirely independent of the ringing and talking circuits.

With the above and other objects in view, the invention consists in the construction, combination and arrangement of parts hereinafter set forth in and falling within the scope of the claims.

In the accompanying drawings; Figure 1 is a front elevation of a desk telephone equipped with a lock constructed in accordance with my present invention. Fig. 2 is a sectional view through the lock casing. Fig. 3 is a similar view taken at right angles to Fig. 2. Fig. 4 is a diagrammatic view of the circuit connections of one of the locks. Fig. 5 is a diagrammatic view showing the circuit connections between a number of

locks. Fig. 6 is a diagram showing the system installed on a telephone line.

In the present instance, I have shown my invention as applied to a desk phone, but it is to be understood that the invention is equally applicable to wall phones and is therefore not limited to the particular use herein shown and described.

Referring now to the accompanying drawings in detail, the numeral 1 indicates the base of a well known form of desk telephone, while 2 designates the standard extending upwardly from the base and 3 the transmitter.

Suitably fastened to the standard 2 of each telephone is a box-like structure 3' in which is mounted the locking mechanism of the phone and through which passes the horizontally disposed shank of the receiver hook 4 the latter supporting the receiver 5. The interior of the box-like structure 3 is preferably lined with hard rubber 6 or other suitable insulating material and has mounted therein above the shank of the receiver fork or hook a pair of electromagnets 7, 7 controlling an armature 8 pivoted at its upper end upon a pivot stud 9 and composed of two sections 10 and 11 secured to one another at their adjacent ends through the medium of a spring hinge 12. This armature 8, as shown, is disposed vertically and the free end thereof terminates immediately above the upper edge of the shank of the receiver hook so that when the magnets are energized the armature is swung about its pivot 9 and so locks the receiver hook against upward movement when the receiver is removed. Adjacent to the upper end of the armature 8, the inner wall of the box-like structure has connected thereto a bracket 13 carrying a set screw 14 in contact with a leaf spring 15 secured to the armature 8 and acting to maintain the armature in normal position and return the same to normal position when the magnets are deenergized. A second bracket 16 is also fastened to the inner wall of the casing adjacent to the lower end of the armature and is equipped with a set screw 17 designed to be engaged by the armature to limit the movement thereof under the action of the leaf spring 15.

Suitably fastened to the side wall of the box-like structure 3' through which the forked extremity of the receiver hook passes, above and below the shank, are brackets 18,

19 each equipped with a binding screw 20 terminating in a contact point 21, while bolted or otherwise fastened to the shank of the receiver hook within the box-like structure is a block 22 preferably composed of insulating material and carrying at its opposite edges spring contacts 23, 24 adapted to engage the contacts 21, 21 of the binding screws on the brackets 18 and 19 respectively.

Slidably disposed within each box-like structure 3' immediately below the lower edge of the shank of the receiver hook is a plunger 25 terminating outwardly of one side of the box in a button or head 26 whereby the plunger may be moved inwardly of the casing or box-like structure. This plunger 25 is slidably mounted within guides 27, 27 arranged within the casing 3' and suitably spaced apart and between the shank of the receiver hook and the adjacent wall of the casing is provided with a stop 28 whereby inward movement of the plunger, when the receiver hook is down, is checked. Surrounding the plunger 25 adjacent to one end thereof is a collar 29 and between the collar and the adjacent guide 27 is an expansion spring 30 acting upon the plunger to hold the same against inward movement. Secured to the wall of the casing 3' below the plunger 25 is a bracket 31 carrying a binding post 32 terminating in a contact point 33 which, when the plunger 25 is in normal position, is engaged by a spring contact 34 carried by the lower side of the plunger. At the upper side of the plunger 25 at an appropriate distance to one side of the bracket 31 is a second bracket 35 also suitably secured to the inner wall of the box-like structure and equipped with a binding post 36 terminating in a contact point 37 adapted to be engaged by a spring contact 38 secured to the upper side of the plunger when the latter has been actuated inwardly of the casing. In this movement of the plunger, the contact spring 34 disengages the contact point 33 of the binding post 32, while the contact spring 38 enters into engagement with the point 37 of the binding post 36.

Leading into each box-like structure 3' is a conductor 38' connected by means of branch wires 39, 40 and 41 with the contact points 21, 21 and 37 respectively of the respective binding posts carried by the brackets 18, 19 and 35, while connected to the contact spring 23 on the block 22 is one terminal of a conductor 42 including a source of electrical energy as a battery 43 and having the free terminal thereof connected to the contact spring 34 carried by the lower side of the plunger 25. Connected to the contact spring 24 on the lower side of the block 22 is one terminal of a conductor 44 tapped onto the conductor 42

beyond the battery, as at 45. Connected to the spring contact 38 on the upper side of the plunger 25 and to the contact point 33 of the binding post 32, by way of branch wires 46 and 47 respectively, is a conductor 48 including in series the magnets 7, 7 and extending outwardly of the box-like structure.

As will be readily apparent from Fig. 5 of the drawings, the locking mechanisms of the various telephone sets are connected to one another in series by way of a conductor 50, while the free terminals of the conductor 50 are grounded as at 51.

The above is a description of the mechanical and electrical features of my telephone locking system and the operation of such system may be briefly stated as follows: Referring particularly to Fig. 5 of the drawings wherein, for the purpose of illustration, I have shown three telephone locking mechanisms connected in series and designated by the letters A, B, C, we will assume that the subscriber at C wishes talking communication with a subscriber at A. The subscriber at C previous to lifting the receiver from the hook rings the central operator and subsequently lifts the receiver. When the receiver hook is relieved of the influence of the receiver, the former moves upwardly to close the talking circuit to the central station as is well known and simultaneously breaks the contact between the contact spring 24 and the contact point 21 and makes contact between the spring contact 23 and the respective point 21 whereby current from the battery 43 of the subscriber's telephone locking mechanism flows from the battery 43 through the conductor 42, contact spring 34 on the plunger 25, contact point 33, conductor 48, through the magnets 7, 7 of the subscriber's locking mechanism, conductors 48, 50, contact point 21 of the subscriber's telephone locking mechanism at B, contact spring 24 in engagement with the point 21, wire 44, a portion of conductor 42, contact spring 34, contact point 33, conductor 48, through the magnets 7, 7 of the telephone locking mechanism at B and so on through the series of locking mechanisms of the system. Thus, the energized magnets 7, 7 of each locking mechanism attract the armatures 8 and so swing the free ends of the latter into the path of movement of the shanks of the receiver hooks whereby the latter are held down irrespective of the weight of the receiver thereon. The section 11 of the armature 8 at C contacts with the adjacent side of the receiver hook, the latter being up before the contact is made to close the circuit, and the spring hinge 12 gives with the effect to eliminate binding between the armature and the shank of the respective receiver hook. When the central operator has noti-

5 fied the particular called subscriber, such operator advises the subscriber at C to this effect and the latter pushes the plunger 25 inwardly of the casing with the result that the circuit is broken at the contacts 33 and 34 and is closed at the contacts 38 and 37 with the battery cut out of the circuit. The magnets 7, 7 of the system are now de-energized so that when the subscriber A takes up his receiver, the hook thereof is permitted to assume its elevated position and in so doing closes the circuit at the contacts 23 and 21 with the effect to place the battery 43 of the locking mechanism of the subscriber's telephone set at A in the circuit thereby locking the remaining phones out of service. When talking communication is established between A and C, the subscriber C may release the plunger whereby both batteries 43 are placed in the circuit so as to produce, in effect, a double lock, whereby all other telephone sets are cut out of service until both communicating telephones are cut off.

25 It will be seen that, when the receivers are locked down, the plungers 25 are prevented from moving inwardly of the casing owing to the stops 28 engaging the adjacent portions of the receiver shanks. Thus, while two subscribers are talking, the locking circuit cannot be broken.

30 In the diagram illustrated in Fig. 6 of the drawings, the bell boxes of the telephones at A, B and C are indicated at D and as shown are wired in multiple or parallel with the line wires 52 and are entirely independent of the locking system.

40 From the foregoing description taken in connection with the accompanying drawings, the construction, mode of operation and manner of employing my invention will be readily apparent.

45 While I have herein shown and described one preferred form of my invention by way of illustration, I wish it to be understood that I do not limit or confine myself to the precise details of construction herein described and delineated, as modification and variation may be made within the scope of the claims and without departing from the spirit of the invention.

I claim:

55 1. In a telephone locking system, a lock for each subscriber's telephone, said lock comprising an electro magnet and a sectional armature controlled thereby, a spring hinge connecting the sections of said arma-

60 ture, an electric circuit including all of said magnets in series, a source of energy for said circuit at each telephone and normally cut out of said circuit, means operable from the receiver hook of each subscriber's telephone to place the respective source of energy in said circuit to energize all of said magnets, a plunger operable from each telephone to cut the respective source of energy out of said circuit subsequent to the placing of the source in the circuit, means for holding the plunger inoperative in the locked position of the telephone, and means for holding the plunger normally in circuit closing position.

65 2. In a telephone locking system, a locking mechanism for each subscriber's telephone, each mechanism including an electro magnet and an armature controlled by said magnet and adapted to be operated therefrom to lock the telephone out of service, an electric circuit including all of said magnets in series, a source of energy for said circuit at each telephone and normally cut out of said circuit, means operable from each subscriber's telephone to place the respective source of energy in said circuit to energize all of said magnets, a plunger operable from each telephone to break said circuit subsequent to the closing thereof, and means for holding the plunger inoperative in the locked condition of the telephone.

70 3. In a telephone locking system, a lock for each subscriber's telephone, each lock comprising an electro magnet and an armature controlled thereby, an electric circuit including all of said magnets in series, a source of energy for said circuit at each telephone and normally cut out of said circuit, means operable from the receiver hook of each subscriber's telephone to place the respective source of energy in said circuit to energize all of said magnets, a plunger operable from each telephone to cut the respective source of energy out of said circuit subsequent to the placing of the source in the circuit, and a stop on said plunger and contacting with the receiver hook when the latter is down whereby the plunger is held in inactive position in the locked condition of the telephone.

105 In testimony whereof I affix my signature in presence of two witnesses.

WALTER ALDEN MORSE.

Witnesses:

MARY C. ELLIOTT,  
DYER S. ELLIOTT.