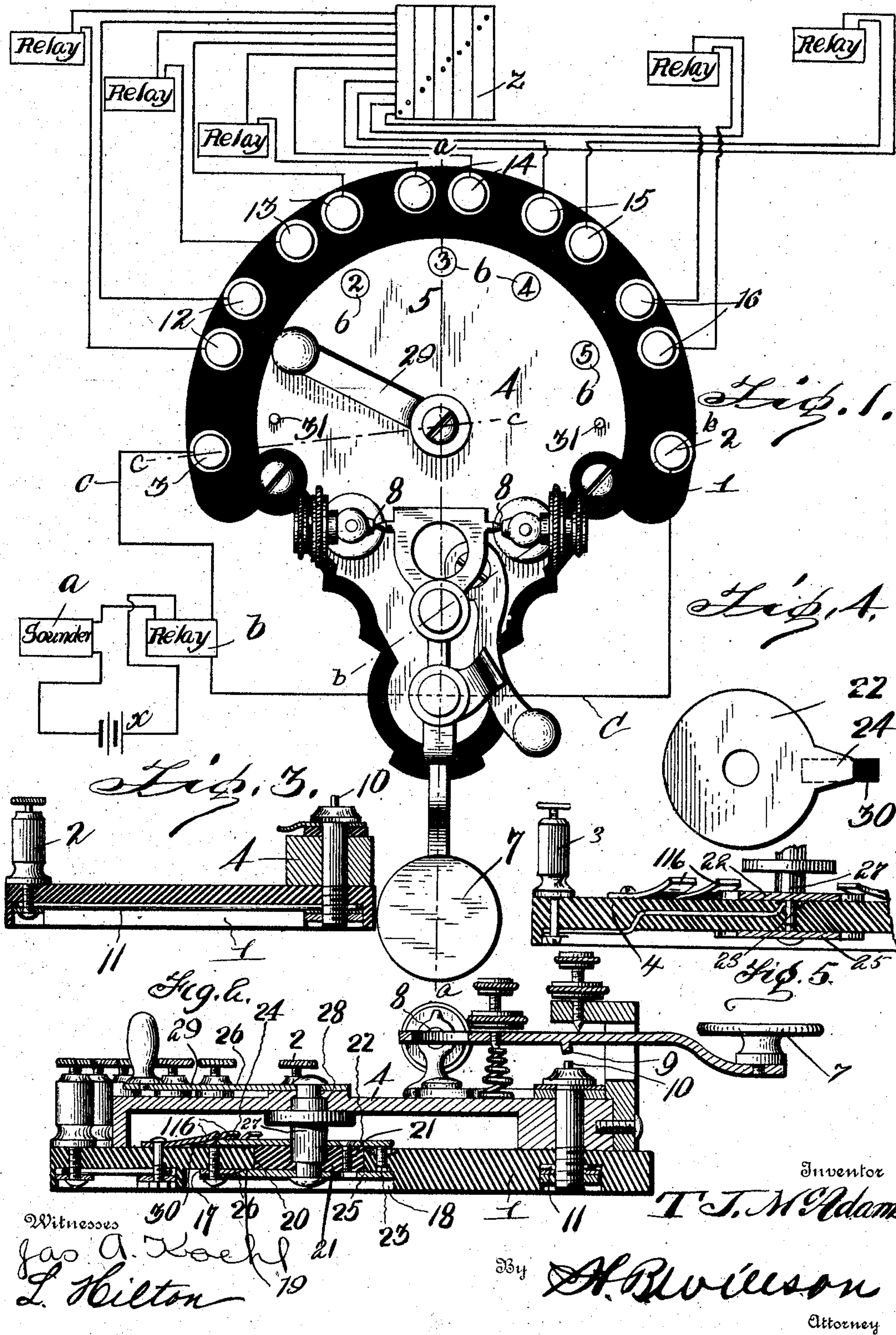


No. 791,103.

PATENTED MAY 30, 1905.

T. J. McADAMS.  
TELEGRAPH KEY AND SWITCH.  
APPLICATION FILED MAY 19, 1904.





# UNITED STATES PATENT OFFICE.

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## TELEGRAPH KEY AND SWITCH.

SPECIFICATION forming part of Letters Patent No. 791,103, dated May 30, 1905.

Application filed May 19, 1904. Serial No. 208,741.

*To all whom it may concern:*

Be it known that I, THOMAS J. McADAMS, a citizen of the United States, residing at Annapolis, in the county of Iron and State of Missouri, have invented certain new and useful Improvements in Telegraph Keys and Switches; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention is an improved combined telegraph key and switch to enable an operator to work any one of a number of wires by means of the same key and without leaving his seat; and it consists in the construction, combination, and arrangement of devices hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a top plan view of my improved combined key and switch, the electric circuits being indicated diagrammatically. Fig. 2 is a sectional view of the same, taken on the plane indicated by the line *a a* of Fig. 1. Fig. 3 is a similar view taken on the plane indicated by the line *b b* of Fig. 1. Fig. 4 is a detail top plan view of the switch-disk 22. Fig. 5 is a detail section taken on the plane indicated by the line *c c* of Fig. 1.

In accordance with my invention I provide a subbase 1, which is made of rubber or other suitable non-conducting material, which is provided with binding-posts 2 3 on opposite sides and opposite each other for the attachment of local wires *c*, leading from the poles of a local battery *a* and including in circuit therewith a sounder *a* and a relay *b* of suitable resistance.

On the subbase is a conducting-base 4, having an enlarged semicylindrical end 5, provided with number-plates 6 in its upper side, (here shown as five in number,) arranged in a curve and numbered consecutively, as shown. Any suitable number of the said plates may be used. A key 7 of the usual or any suitable form is mounted on the conducting-base, as at 8, and has a contact-point 9 to make and break electrical connection with a contact-point 10, which is insulated from the base 4 and is connected by a wire 11 to the binding-

post 2. Binding-posts for a number of lines are arranged in pairs in a semicircle and between the binding-posts 2 3, the pairs of line-binding posts corresponding in number to the number-plates 6 and being respectively designated as 12, 13, 14, 15, and 16. One post of each pair is electrically connected to a spring-electrode-arm 116 on the upper side of the subbase, the other post of each pair being connected to a contact 17, which is normally engaged in closed circuit by the spring-arm 116 and has in a recess 18 in the bottom of the subbase a contact spring-arm 19.

The subbase has an opening 20, with reference to which the contact-arms 16 19 are radially disposed, the same corresponding in position or registering with the number-plates 6, which indicate the several working circuits. A non-conducting pivot-disk 21 is mounted to revolve in the said opening 20. On the upper side of this pivot-disk is a conducting switch-disk 22, which is secured thereon to revolve therewith and is at all times in electrical contact with a contact-point 23, secured in the subbase and connected electrically to the binding-post 3. Said switch-disk has an arm 24, which projects radially therefrom. When the disk is appropriately turned, said arm may be caused to pass under any one of the spring-arms 116 to establish electrical connection therewith and break contact and circuit between said arm 16 and its associate electrode 17. On the under side of the pivot-disk and insulated thereby from the switch-disk 22 is a switch-disk 25, which is secured to the pivot-disk to rotate therewith and has an arm 26 to establish electrical contact with any of the contact spring-arms 17. Hence by turning the pivot-disk the key may be put in circuit with any one of the various working lines, thus enabling the key to be used in connection with any of said working lines at will, the circuit being from one pole of the local battery to post 2, through the key, through the base 4, post 27, disk 25, arm 26 thereof, arm 19, one of the working lines, arm 116, disk 22, contact 23, and post 3 to the other pole of the local battery.

The switch-disk 25 is connected electrically with the conducting-base by a pivot-post 27,



which has its bearing in an opening 28 in the base 4, and to the upper end of said pivot-post is attached a switch-arm 29. This switch-arm coacts with the number-plates to put the  
 5 key in any of the working lines or circuits, as will be understood.

Where box-relays are used on the main-line wires, it is only necessary to keep up the battery in the local office for the set of instruments therein included in circuit with such  
 10 battery. A pin-board is indicated at *z* in Fig. 1.

To insure breaking of the line-circuits at the contacts 16 17 to cut in the key, I provide the  
 15 arm 24 of the switch-disk 22 with a non-conducting radial extension 30, comprising a thin strip of rubber or other suitable non-conducting material which passes between the said contacts 16 17 and effectually prevents short-circuiting when the parts become worn and  
 20 also prevents dust from accumulating between such contacts.

Stops 31 on the base 4 limit the angular movement of the switch-arm 29.

25 My improved combined key and switch is especially useful in a train-dispatcher's office, as in case of wire trouble on the regular train-wire it becomes necessary to get another wire in order to send his messages.

30 From the foregoing description, taken in connection with the accompanying drawings, the construction and operation of the invention will be readily understood without requiring a more extended explanation.

35 Various changes in the form, proportion, and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention.

40 Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A combined telegraph key and switch

comprising a non-conducting subbase having an opening, pairs of line-connectors secured  
 45 to the subbase, pairs of spring-contacts on the upper and lower sides of the subbase, one of each of said contacts being connected to one of the line-connectors, a conducting-base on the subbase, a key on the base, local battery-  
 50 connectors, one connected to the contact of the key, an insulating-plug revoluble in the opening in the subbase, conducting switch-disks on the upper and lower sides of the plug, revoluble therewith, normally in contact with  
 55 the spring-contacts and having arms to engage the spring-contacts to include the key in circuit with any pair of line-connectors, one of said switch-disks being connected to the other local battery-connector, a conducting  
 60 pivot-post connected to the other switch-disk and the conducting-base, the plug and both of the switch-disks being revoluble with the pivot-post and the latter having means whereby it may be turned, substantially as de-  
 65 scribed.

2. An instrument of the class described, having normally closed circuit-closers for a plurality of working circuits, said circuit-closers including contact-springs, a key, and  
 70 a switch device having means to open any of such circuit-closers and including the key in any of the working circuits at will, said circuit-opening means including a revoluble conducting-arm to engage and operate the con-  
 75 tact-spring and having a non-conducting radial extension to pass between said contact-springs and their coacting contacts, for the purposes set forth.

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

THOMAS J. McADAMS.

Witnesses:

P. J. BURFORD,

J. W. HOAGLAND.