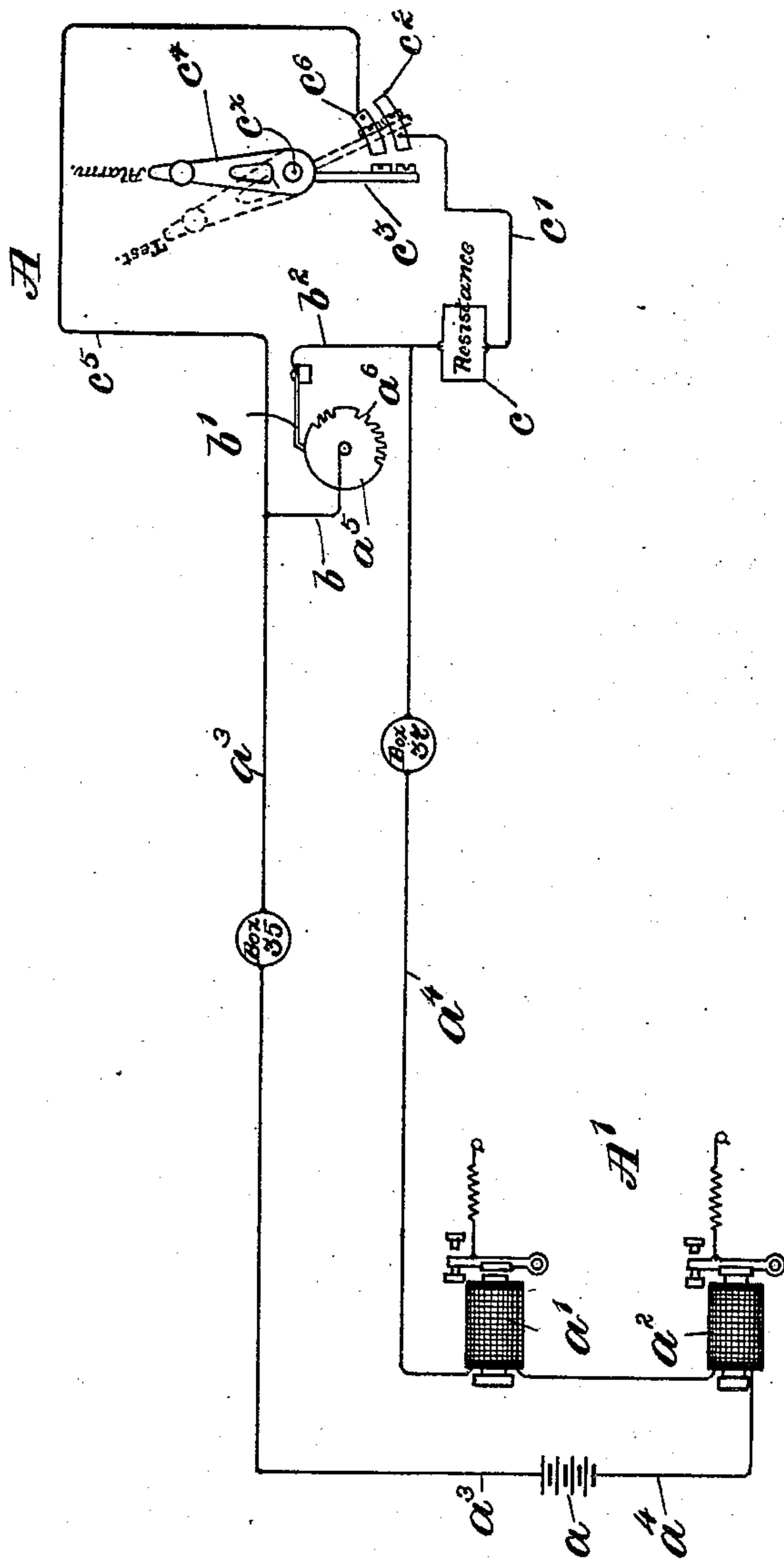


(No Model.)

H. A. CHASE.
SYSTEM FOR TRANSMITTING SIGNALS.

No. 471,534.

Patented Mar. 29, 1892.



WITNESSES.

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UNITED STATES PATENT OFFICE.

HENRY A. CHASE, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO ALBERT WATTS, OF SAME PLACE.

SYSTEM FOR TRANSMITTING SIGNALS.

SPECIFICATION forming part of Letters Patent No. 471,534, dated March 29, 1892.

Application filed November 27, 1891. Serial No. 413,154. (No model.)

To all whom it may concern:

Be it known that I, HENRY A. CHASE, residing in Boston, county of Suffolk, and State of Massachusetts, have invented an Improvement in Systems for Transmitting Signals, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

10 This invention relates to a system for transmitting signals from one point or station to another point or station, and has for its object to provide a signaling system in which a single signal-wheel may transmit its signal without additions thereto, subtractions therefrom, repetitions thereof, or change in its character over two different paths for two different purposes.

20 My invention in a system for transmitting signals therefore consists in the combination of the following instrumentalities, viz: a normally-closed metallic circuit, a receiving-instrument included therein, a normally-open auxiliary circuit connected to the metallic circuit, a signal-wheel included in the metallic circuit and provided with only the number of teeth or notches necessary to indicate a definite signal or number, and means to close the normally-open auxiliary circuit to complete the metallic circuit when the latter is opened by the signal-wheel, whereby the signal-wheel may transmit the definite signal indicated by all its teeth or notches over the metallic circuit for one purpose, and whereby 35 the same signal-wheel may transmit the same signal indicated by all its teeth or notches over the auxiliary circuit for a different purpose, substantially as will be described.

40 Other features of my invention will be pointed out in the claims at the end of this specification.

The drawing shows in diagram a sufficient portion of a signaling system embodying my invention to enable it to be understood.

45 In accordance with my invention a metallic circuit extending from a transmitting-station A to a receiving-station A' has located in it at the station A' a battery a and preferably two relays a' a^2 . The battery a has connected to one of its poles one line-wire a^3 of

the metallic circuit and to its other pole the other line-wire a^4 , in which the relays a' a^2 are located, as herein shown. The line-wire a^3 is electrically connected to a signal-transmitting wheel a^5 , located at the transmitting-station A, and the said wheel is provided on its periphery with a series of notches or teeth a^6 , indicative of a number or signal corresponding to the number of the transmitting mechanism at the station A, the said wheel being connected to the line-wire a^3 , as herein shown, by the branch wire b . The signal-wheel a^5 has co-operating with it a pen or brush b' , joined by wire b^2 to the other line-wire a^4 , the said pen being normally in contact with the signal-wheel to complete the normally-closed metallic circuit extended from the transmitting-station A to the receiving-station A'.

60 The signal-wheel a^5 in practice may be revolved by any usual motor mechanism to cause the metallic circuit to be opened and closed to produce operation of the receiving-relays a' a^2 . The signal-wheel a^5 , when operated as described, produces at the receiving-station a signal indicative of one purpose, which, for instance, may be supposed to be an alarm.

65 It is the object of this invention to enable the signal-wheel a^5 to be employed to produce the same signal at the receiving-station and not indicate an alarm, but an entirely different purpose—as, for instance, a test-signal. This feature is accomplished, as herein shown, by connecting to one line-wire, as a^4 , a resistance c , joined, as herein shown, by an auxiliary circuit-wire c' to a circuit-terminal c^2 , with which co-operates a contact-arm c^3 , secured to a shaft c^x , having fast to it a pointer c^4 , the other line-wire a^3 being connected, as shown, by an auxiliary circuit-wire c^5 to a circuit-terminal c^6 , with which the contact-arm also co-operates. Normally the auxiliary circuit is opened by the contact-arm c^3 being out of engagement with the circuit-terminals c^2 c^6 , the pointer at such time being in its normal position. (Shown in the drawing and marked "alarm.") While the pointer is in this position, the signal-wheel may be operated to produce an alarm-signal, and if the 100

pointer is moved to the position marked "test" the auxiliary circuit is closed by the contact-arm c^3 being brought into contact with the circuit-terminals $c^2 c^6$, as indicated by dotted lines. When the pointer is in its dotted-line position, the signal-wheel may be operated to produce the test-signal, which, as before stated, is precisely the same as the alarm-signal, but an alarm-signal is not produced, owing to the fact that the alarm-relay a^2 does not respond to a weak current caused by the interposition of the resistance c at each break or notch in the signal-wheel, and only the test-relay a' is operated by the transmission of the test-signal. When in the revolution of the signal-wheel in the transmission of the test-signal a break or notch is brought beneath the pen b' , the metallic circuit is still completed through the resistance c and auxiliary circuit-wires $c' c^5$. The relay a^2 has its armature adjusted so as to respond only to total interruptions in the metallic circuit, and the relay a' has its armature adjusted so as to respond to total interruptions and to a weakening of the current.

I claim—

1. In a system for transmitting signals, the combination of the following instrumentalities, viz: a normally-closed metallic circuit, a receiving-instrument included therein, a signal-wheel provided with only the number of teeth or notches necessary to indicate a definite signal or number connected to one side or line-wire of the metallic circuit, a pen or brush in engagement with the signal-wheel and connected to the other side or line-wire of the metallic circuit to normally complete the said metallic circuit, a normally-open auxiliary circuit having one line-wire connected to the signal-wheel and its other line-wire connected to the pen or brush co-operating with the signal-wheel, and a circuit-controller to complete the normally-open auxiliary circuit and thereby maintain the metallic circuit closed when the latter is opened by a notch

or tooth on the signal-wheel, whereby the teeth or notches on the signal-wheel may transmit a signal indicated by all the teeth or notches over the metallic circuit when the auxiliary circuit is open and whereby the same teeth or notches may transmit the same signal indicated by all the teeth or notches on the signal-wheel over the combined metallic and auxiliary circuit when the said auxiliary circuit is closed and the metallic circuit opened at the teeth or notches on the signal-wheel, substantially as described.

2. In a system for transmitting signals, the combination of the following instrumentalities, viz: a normally-closed metallic circuit, receiving-relays $a' a^2$, included therein, a signal-wheel connected to one line-wire of the metallic circuit and provided with only the number of teeth or notches necessary to indicate a definite signal or number, a pen or brush normally in contact with the said wheel and connected to the other line-wire to complete the said metallic circuit, an auxiliary circuit connected to both sides of the metallic circuit and provided with normally-open circuit-terminals, a resistance in the auxiliary circuit, a contact-arm co-operating with the said circuit-terminals, and a pointer to operate said contact-arm, whereby the said signal-wheel may transmit the definite signal, indicated by all its teeth or notches, over the metallic circuit for one purpose when the pointer is in one position, and whereby the same signal-wheel may transmit the same signal, indicated by all its teeth or notches, over the auxiliary circuit for another purpose when the pointer is in a different position, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

HENRY A. CHASE.

Witnesses:

JAS. H. CHURCHILL,
SADIE C. FEARING.