

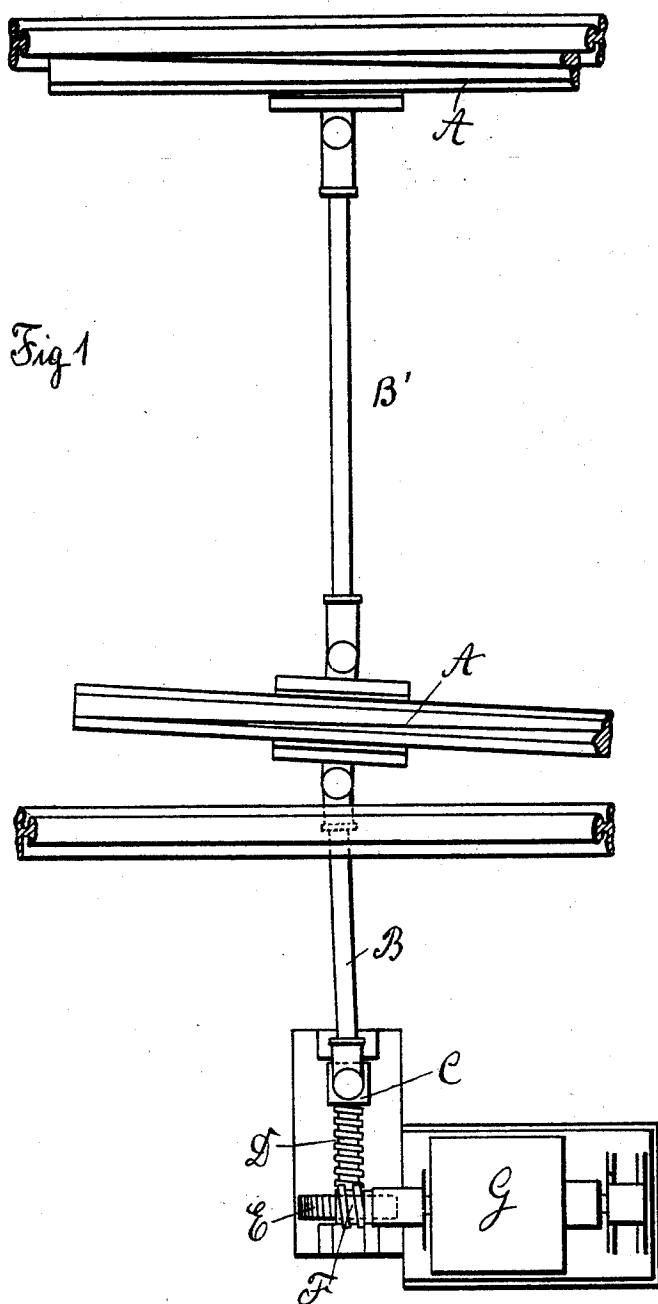
(No Model.)

2 Sheets—Sheet 1.

E. H. E. KLATTE.
ELECTRICALLY GOVERNED SWITCH.

No. 519,813.

Patented May 15, 1894.



WITNESSES:

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R. L. Maynard
Charles R. B.

INVENTOR
E. H. E. Klatter

by *James P. Regener*
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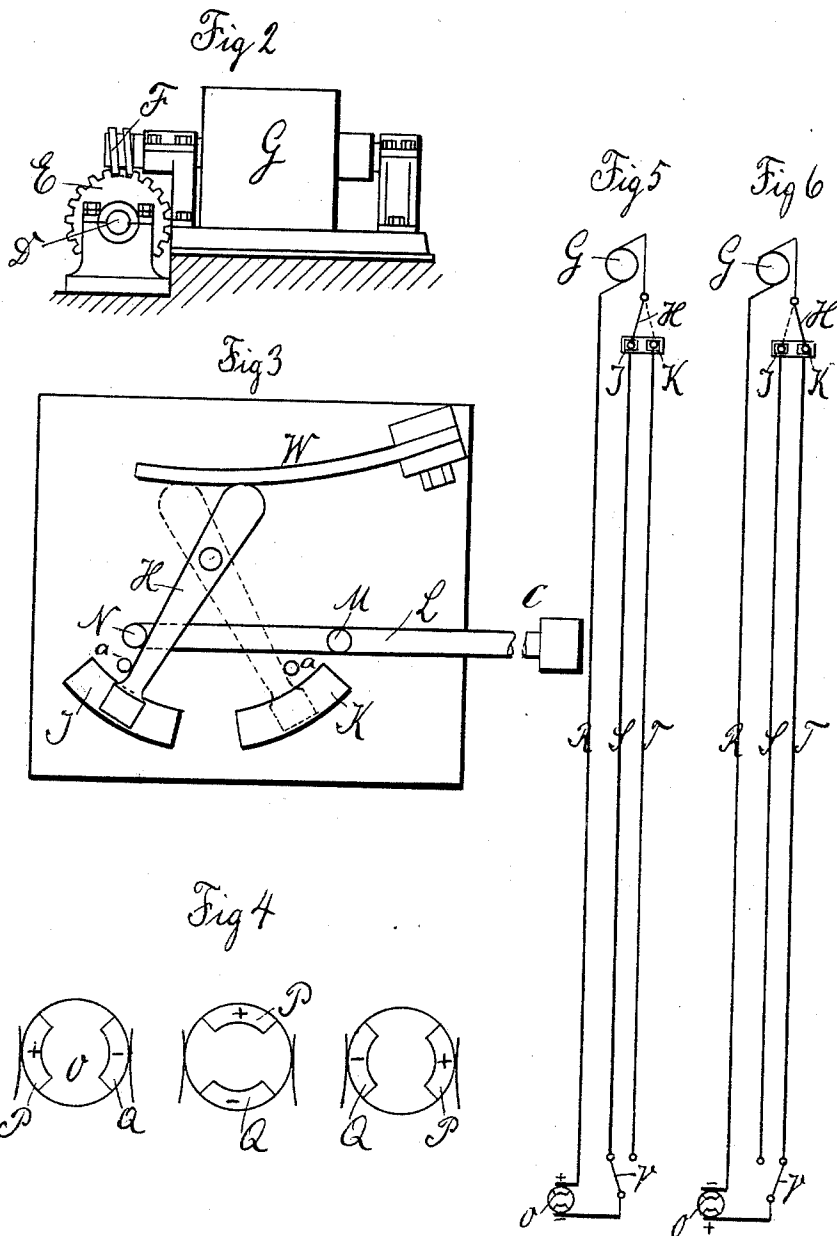
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WITNESSES:
R. L. Maynard
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UNITED STATES PATENT OFFICE.

EMIL HUGO ERNST KLATTE, OF FREIBURG, BADEN, GERMANY.

ELECTRICALLY-GOVERNED SWITCH.

SPECIFICATION forming part of Letters Patent No. 519,813, dated May 15, 1894.

Application filed February 29, 1892. Serial No. 423,323. (No model.) Patented in Germany February 7, 1892, No. 65,039; in Switzerland February 11, 1892, No. 4,747; in Austria-Hungary February 12, 1892, No. 8,300; in England February 13, 1892, No. 2,849; in France February 18, 1892, No. 219,609; in Belgium February 18, 1892, No. 98,419, and in Italy March 5, 1892, No. 31,394.

To all whom it may concern:

Be it known that I, EMIL HUGO ERNST KLATTE, a subject of the Grand Duke of Baden, German Empire, residing at Freiburg, Baden, Germany, have invented certain new and useful Improvements in Electrically-Governed Switches, (for which I have obtained patents in the following countries, to wit: Germany, No. 65,039, dated February 7, 1892; Belgium, No. 98,419, dated February 18, 1892; France, No. 219,609, dated February 18, 1892; England, No. 2,849, dated February 13, 1892; Austria-Hungary, No. 8,300, dated February 12, 1892; Italy, No. 31,394, dated March 5, 1892, and Switzerland, No. 4,747, dated February 11, 1892,) of which the following is a specification.

This invention relates to an electric device for operating rail road switches and which is especially adapted for switch towers or stations: and the invention consists in the combination with an electro motor, of switch tongues operated by the motor, accordingly as the armature of the motor is rotated in one direction or the other.

The invention also consists in the construction and combination of parts and details which will be fully described hereinafter and finally pointed out in the claims.

In the accompanying drawings, Figure 1 is a plan-view of my improved electric switch operating-device, parts being omitted. Fig. 2 is a side-view of the electro motor. Fig. 3 is a detail-plan-view of the automatic circuit breaker. Fig. 4 is a plan-view of the pole changing device in three different positions, and Figs. 5 and 6 are diagrammatical plan-views of the electric conductors for operating the switches.

Similar letters of reference indicate corresponding parts.

Upon the shaft of the electro motor G, which may be of any approved construction, a worm F is formed, that engages a work-wheel E fixed on the screw spindle D that is suitably mounted in bearings adjacent to the switch tongues A A. A nut C is mounted to travel on the spindle D and is connected by the connecting rod B with one switch tongue, the two tongues being connected by the rod B'.

When the motor is operated by admitting a current into the same, the screw spindle D is rotated in one direction or the other, and accordingly the nut C is moved in one direction or the other and the switch tongues moved likewise. When the switch tongues are thrown it is necessary that the current should be broken a short time before the switch tongues rest against the corresponding rails, so that the inertia of the machine is just sufficient to press the tongues firmly against the rails. For the purpose of accomplishing this, the automatic circuit breaker shown in Fig. 3 is provided. The arm H is so pivoted that it can rest upon either one of the two contact pieces J and K. Upon the upper rounded end of the arm H a spring W bears, which has a tendency to swing the opposite end of the lever outward or against the stop pins α , which stop pins α hold the end of the lever H on the ends of the contact pieces J and K. A reciprocating rod L is arranged under the lever H and is provided with two projections M N, which can act upon the lever H, which rod L is connected in any suitable manner with the nut C, so as to participate in the movements of the same.

When the parts are in the position shown in Fig. 3 and the rod L is moved to the right, the projection N acting against the lever H swings the same from the position shown in full lines in the direction toward the position shown in dotted lines. When the lever H has arrived slightly past the median line, the spring W, which is in tension, throws the same forcibly into the position shown in dotted lines, whereby the current is broken and shut off from the motor, the inertia of the motor being sufficiently great to move the screw spindle to such an extent that the switch tongues are pressed firmly against the rails. For the purpose of moving the switch tongues from one position to the other, it is necessary to conduct the current into the motor in the reverse direction. This is accomplished by means of a pole changer O, which is shown in different positions in Fig. 4. This pole changer is constructed with two opposite insulated contact pieces P Q, of which P is connected with the positive conductor

to the source of electricity and q with the negative conductor. By giving said current changer a quarter turn the current is interrupted completely, as shown in the center of Fig. 4, and by giving a further quarter turn in the same direction the current is reversed.

At the central station a pole changer O and the electric switch V are provided for each pair of switch tongues.

10 From the pole changer a conductor R passes to the motor G, and from the two conductors of the electric switch V two conductors S T extend to the contacts J K previously described. When the parts are in the position 15 shown in Fig. 5, the current passes from the positive contact piece P through the conductor R to the electro motor G, and from the latter through the switch H, conductor S, and switch V back to the negative contact piece 20 Q of the pole changer O. The screw spindle D is now rotated and moves the switch tongues. When the tongues are quite close to the rails the lever H is thrown in the manner described and the current broken. If 25 now the switch tongues are to be moved back into the original position, the official at the central station reverses the pole changer O and adjusts the switch V in such a manner as to make connection with the conductor T. 30 The current now passes from the positive contact piece P of the pole-changer through the switch V, conductor T and the lever H to the electro motor G, and from the same through the conductor R back to the pole 35 changer. The electro motor is now operated in the reverse direction and the switch tongues are also moved in the opposite direction. The pin M now pushes the lever H from the position shown in dotted lines in Fig. 3 toward 40 the position shown in full lines.

By means of the above described device, any number of switches can easily be manipulated from a central station, and said switches can be located any desired distance 45 from said central station and do not require the expensive, cumbersome and unreliable rods or wires or pulleys used heretofore.

Having thus described my invention, I claim as new and desire to secure by Letters 50 Patent—

1. The combination of a railway track, a railway switch tongue, an electric motor connected with the switch tongue for operating it, a circuit breaker connected with the switch 55 mechanism, and a pole changer connected with said motor and circuit breaker and

adapted to reverse the motion of the electric motor for shifting the switch tongue.

2. The combination of a railway track, a switch tongue, an electric motor connected 60 with said switch tongue for actuating it, a pole changer for said motor, an electric switch disposed near the pole changer, a circuit breaker, mechanism connecting said breaker with the switch mechanism, and conduct- 65 ing wires leading from the pole changer and reversing switch to the motor and circuit breaker.

3. The combination of a railway track, a switch tongue therefor, an electric motor, a 70 worm gear mechanism operated by the motor and connected to said tongue, a circuit breaker, a connecting rod between the worm gear and circuit breaker for actuating the latter, 75 a pole changer, an electric switch disposed near the pole changer, and conducting wires disposed near the pole changer and motor and electric switch and circuit breaker.

4. The combination of a railway track, a switch tongue therefor, an electric motor, 80 a mechanism between the motor and switch tongue for moving the latter, a circuit breaker composed of two contact studs and a pivoted spring actuated lever, a rod engaging the lever of the circuit breaker and connected with 85 the switch mechanism, a pole changer, an electric switch disposed near the pole changer, and conducting wires between the pole changer and motor and electric switch and circuit 90 breaker.

5. The combination of a railway track, a switch tongue, an electric motor, connecting mechanism between said motor and tongue 95 for operating the latter by the former, a circuit breaker connected with and controlled by the tongue switching mechanism, a wire connecting said motor and circuit breaker, a pole changer, a wire connecting said motor and said pole changer, an electric switch dis- 100 posed adjacent to said pole changer, a wire connecting said pole changer with said electric switch, and two wires connecting the contact points of said electric switch and circuit breaker.

In testimony that I claim the foregoing as 105 my invention I have signed my name in presence of two subscribing witnesses.

EMIL HUGO ERNST KLATTE.

Witnesses:

THEODOR ATT,
FERD. BOPP.