B. P. HAYES.

CIRCUIT MAKING AND BREAKING MECHANISM.

APPLICATION FILED JULY 28, 1909.

990,483. Patented Apr. 25, 1911.

Fig. I.

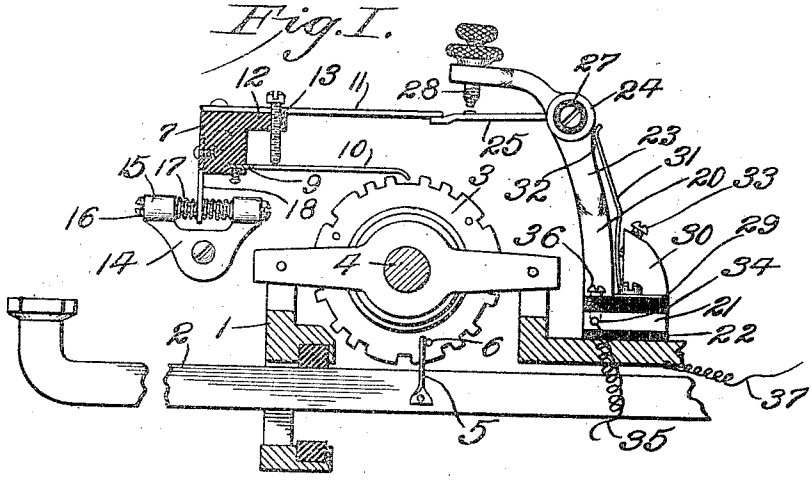


Fig. II.

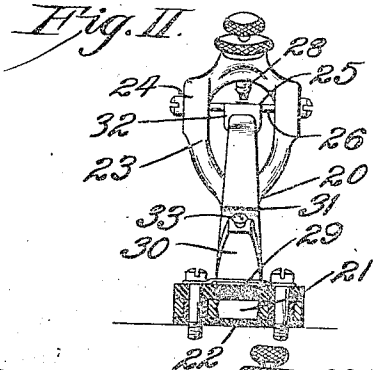


Fig. III.

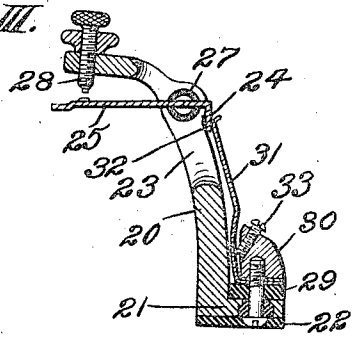


Fig. VI.

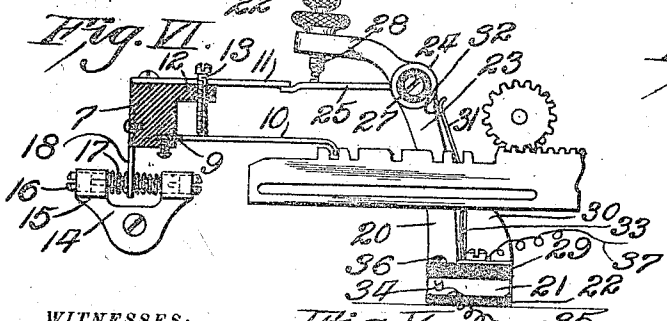


Fig. IV.

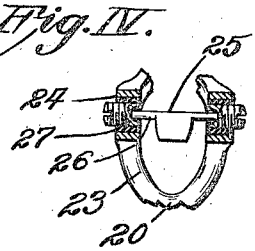
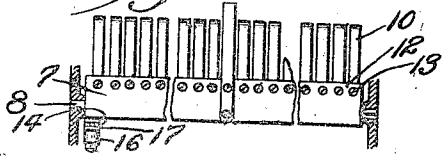


Fig. V.



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CIRCUIT MAKING AND BREAKING MECHANISM.

990,483. Specification of Letters Patent. Patented Apr. 25, 1911.

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To all whom it may concern:

Be it known that I, BENJAMIN P. HAYES, a citizen of the United States, residing at Topeka, in the county of Shawnee and State of Kansas, have invented certain new and useful Improvements in Circuit Making and Breaking Mechanism; 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, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

My invention relates to a contact making and breaking mechanism and more particularly to a device of that class for use with telegraph transmitting machines. Its principal object is to provide a device of that class in which a movable part may be moved to a contact upon the actuation of machine parts, and returned to a set position after the circuit has been closed for a sufficient length of time to produce a desired impulse.

It is a further object of my invention to provide the improved details of structure hereinafter described and pointed out in the claims, reference being had to the accompanying drawings, in which:—

Figure I is a side view of a circuit making and breaking mechanism constructed according to my invention. Fig. II is an end view of the bracket upon which the key parts are mounted. Fig. III is a central sectional view of same. Fig. IV is a vertical section through the key arm pivot. Fig. V is a reduced perspective of a portion of the rocking beam upon which the character fingers are mounted. Fig. VI is a side view of the mechanism, showing its application to a modified form of transmitting machine.

Referring more in detail to the parts:—1 designates the frame of a transmitting machine comprising the key levers 2 and character wheels 3, the latter being revolubly mounted on an axle 4 and adapted for actuation in any suitable manner. On each key lever is a post 5 which is adapted for holding engagement with a pin 6 on a relative character wheel. Pivotally mounted adjacent to and preferably above the character wheels is a rocking beam 7 which is preferably supported by the pivot pins 8. Fixed to the beam 7 is a plate 9 which is split to form the individual contact fingers 10, each of which is adapted for engagement with the periphery of one of the character wheels; also fixed to beam 7 is an arm 11 which is adapted for holding engagement with a movable key arm. The beam 7 is preferably provided with a shelf 12 which over-hangs the character fingers 10 and has the adjusting screws 13; the lower end of each of which is adapted for engagement with one of the character fingers and for adjusting the tension of same against its wheel 3.

Rigidly mounted, adjacent to the beam 7, is a buffer bracket 14 having yoke arms 15 within which are fixed the screws 16. The ends of the screws terminate between the bracket arms and are surrounded by the coil springs 17 which project beyond their free ends. Fixed to the beam 7 is a post 18 which projects between the buffer screws 16 and is adapted for engagement with the end of either screw, according to the direction of the pivotal movement of the beam. The post moves against the tension of the springs 17 so that its impact against the ends of the screws is broken to obviate jarring of the machine.

Mounted on the frame 1 is a key bracket 20, the base 21 of which is insulated from the frame by a mat 22. Above its base the bracket 20 is split to form the arms 23, each of which has a pivot eye 24. Extending between the arms 23 is a key arm 25 having laterally projecting pins 26 which are pivotally mounted in the eyes 24. The pins are insulated from the bracket arms by rings 27. The bracket 20 extends forwardly toward the beam 7 and supports an adjustable contact pin 28, the lower end of which is adapted for contact with a portion of the arm 25.

Supported on bracket base 21, but insulated therefrom by a mat 29, is a head 30. Clamped to the bracket by head 30 is a key lever tension spring 31, the upper end of which engages a flange 32 on the key arm 25 and tensions the arm toward the key point 28.

The end of arm 25, nearest the beam 7, is off-set to engage the under surface of the arm 11.

33 designates a screw which is carried in the head 30 and is adapted for abutment

against the key lever tension spring 31 for the purpose of varying the tension of the spring in relation to the key arm.

34 designates an aperture in the base of key bracket 20 into which one of the circuit wires 35 may be projected and held by a screw 36.

37 designates a second circuit wire which may be connected with the frame 1, so that current may pass to the key lever through the key bracket base screws 38 and spring 31.

In using the apparatus, a driving mechanism (not shown) is provided for revolving the character wheels 3 when they are released from their holding engagement with the key levers 2.

Presuming the parts to be assembled as described and the character wheels connected with the suitable operative mechanism, the key lever 2 of a desired letter is depressed to release the key wheel 3. When the wheel is released it is revolved by the mechanism previously mentioned and the peripheral studs raise the finger 10 and rock the beam 7 upwardly.

When the beam 7 is rocked upwardly it lifts the arm 11 so that the key arm 25 is raised by the tension of the key lever tension spring 31 and is allowed to contact with the post 28. When this contact is made a circuit is closed from the wire 37 through the frame 1, screws 38, spring 31, arm 25, post 28, bracket 20 and wire 35, to operate a relay, or other mechanism not shown.

As soon as the character wheel has moved around until the finger 10 leaves its contact with the stud, the end of the finger will drop into the space between two adjacent studs and the key arm 25 be moved downwardly to break its contact with post 28 and open the circuit.

It is apparent that the key arm may be operated successively in a like manner by succeeding character studs and that by combining studs of different widths, telegraphic signals may be transmitted.

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

1. A circuit making and breaking mechanism comprising a stationary key point, a movable key arm, means for yieldingly tensioning the arm toward the point, a character device, a pivotally movable member having an arm over-lying the key arm and normally depressing same aganist the tension of said yielding means, and means carried by said member and adapted for engagement with the character device for the purpose set forth.

2. A circuit making and breaking mechanism comprising a stationary key point, a movable arm adapted for contact with said point, a spring tensioning the arm toward the point, a character device, a pivoted member having an arm over-lying the key arm and means on said member adapted for actuation by the character device to rock the pivoted member and over-lying arm.

3. A circuit making and breaking mechanism comprising a stationary key point; a movable key arm adapted for contact with the key point; character devices, and an actuating member comprising a plurality of fingers, adapted for individual contact with said character devices, and a single arm adapted for actuation by the fingers and for actuating the movable key arm.

4. A circuit making and breaking mechanism comprising a stationary key point, a movable key arm adapted for contact with the point, character devices, and a rocking beam having an arm adapted for actuating the key arm and having separate means adapted for engagement with relative character devices.

5. A circuit making and breaking mechanism comprising a key point; a key arm adapted for contact with said point; character devices and a longitudinally pivoted beam having an arm connected with the key arm, having fingers adapted for separate engagement with relative character devices, and having means for regulating the tension of each finger independently of the others.

6. A circuit making and breaking mechanism comprising a key point, a movable arm adapted for contact with said point, character devices, a longitudinally pivoted beam having a shelf, an arm fixed on said beam and adapted for actuating said key arm, fingers fixed on said beam and adapted for actuation by the character devices, and screws carried by said shelf and adapted for adjusting the tension of said fingers, substantially as and for the purpose set forth.

7. A circuit making and breaking mechanism comprising a character device, a bracket having a head, a key point carried by said bracket, a key arm axially mounted in said bracket and adapted for contact with said point, a spring carried by the bracket and yieldingly tensioning the key arm toward the point, a screw carried by said head and adapted for regulating the tension of said spring, and a controlling member having connection with the key arm and adapted for actuation by the character device for the purpose set forth.

8. A circuit making and breaking mechanism comprising a bracket, a key point carried by the bracket, a key arm axially mounted on, but insulated from the bracket, a spring carried by, but insulated from the bracket and adapted for tensioning the arm to a contact with the point, character devices, a controlling member having an arm connected with the key arm and retaining

same out of contact with the point against the tension of said spring, and means on said controlling member adapted for actuation by a character device and for lifting the controlling member arm, when so actuated, for the purpose set forth.

9. In a circuit making and breaking mechanism, a bracket, a key point carried by the bracket, a key arm having laterally projecting pins pivotally mounted in said bracket and provided with a depending flange, a flat spring carried by the bracket and engaging said arm flange, character devices, a beam pivotally mounted, and having an arm overlying the key arm, and a plate having members adapted for individual contact with said character devices, substantially as and for the purpose set forth.

10. The combination with a suitable frame of a bracket carried by, but insulated from said frame, a key point carried by the bracket, a key arm pivotally mounted on and insulated from the bracket, a flat spring carried on and insulated from the bracket and adapted for tensioning the key arm toward its point, means for regulating the tension of said spring, character devices, a pivotally mounted beam having an arm over-lying the key arm, a plate secured to said beam and having a slotted free edge forming fingers adapted for individual contact with separate character devices, and means for regulating the tension of each of said fingers independently of the others.

11. A circuit making and breaking mechanism comprising a stationary key point and an arm movable toward and from said point, character devices, a pivotally mounted beam having an arm connected with the key arm, and means adapted for actuation by the character devices, a bracket located adjacent to said beam, pins carried by said bracket, springs surrounding said pins and projecting beyond the free ends thereof, and a post carried by said beam and projecting between said pins, substantially as and for the purpose set forth.

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

BENJAMIN P. HAYES.

Witnesses:
JOHN HELLER,
WALTER B. WHITCOMB.