

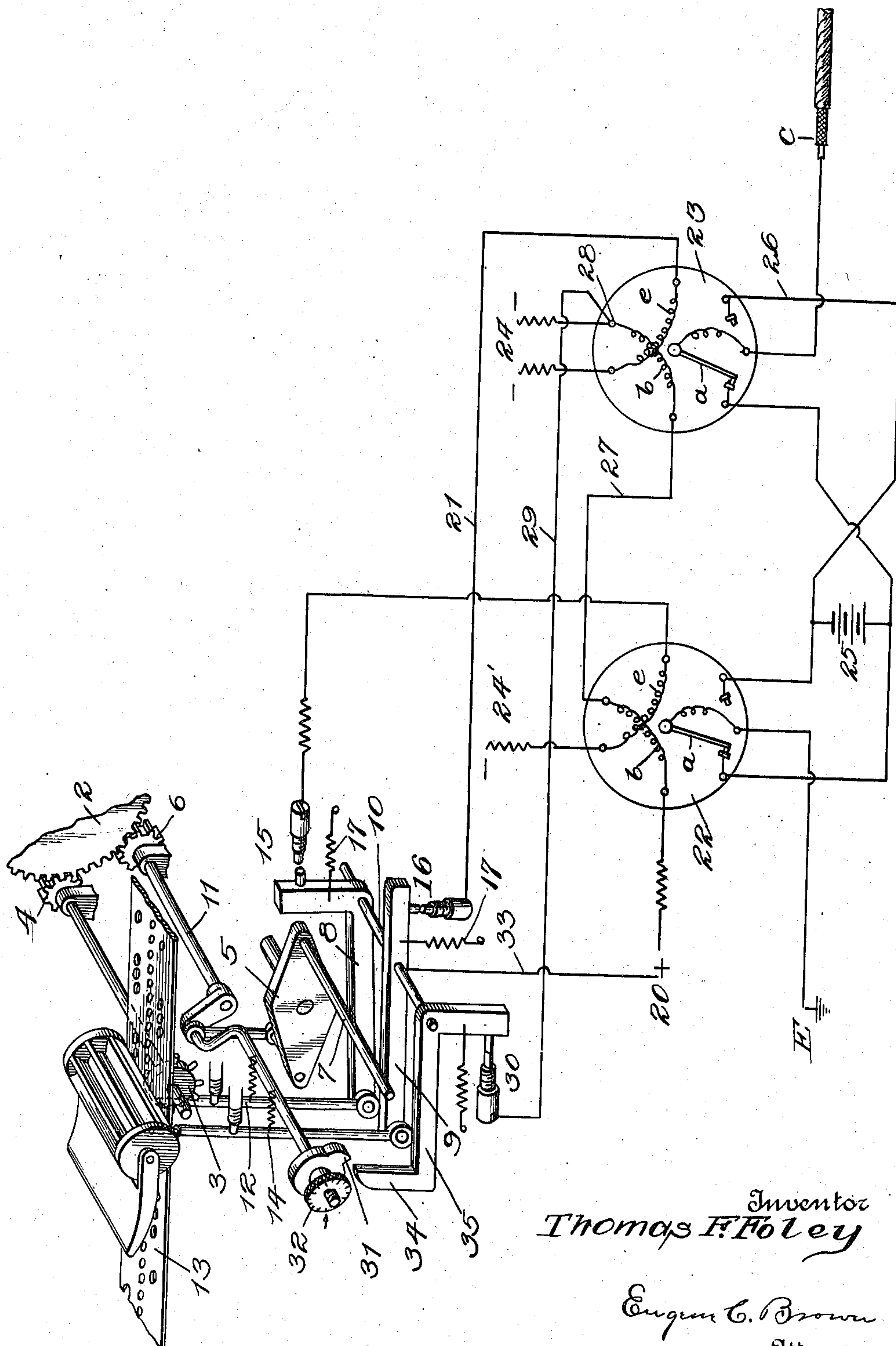
Nov. 25, 1924.

T. F. FOLEY

1,517,110

TELEGRAPH TRANSMITTING APPARATUS

Filed May 13, 1922



Inventor
Thomas F. Foley

Engin C. Brown
Attorney

UNITED STATES PATENT OFFICE.

THOMAS FRANCIS FOLEY, OF BROOKLYN, NEW YORK, ASSIGNOR TO THE WESTERN UNION TELEGRAPH COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

TELEGRAPH-TRANSMITTING APPARATUS.

Application filed May 13, 1922. Serial No. 560,708.

To all whom it may concern:

Be it known that I, THOMAS F. FOLEY, a subject of the King of Great Britain, residing at Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Telegraph-Transmitting Apparatus, of which the following is a specification.

This invention relates to automatic telegraph transmitters of the type controlled by a suitably perforated tape.

In the following description, I have applied my invention to the well known Wheatstone transmitter, modified to be capable of transmitting the cable Morse code. The prepared tape has three rows of holes or perforations, the upper row to send dots, the lower row to send dashes and the center row to be engaged by the star wheel for continuously drawing the tape through the transmitter. The two reciprocating pins which respectively enter the upper and lower rows of holes control not only the character or polarity of the impulses sent into the cable, but also the duration of the impulses or marking time and the corresponding earthing of the cable. The maximum marking period at present obtainable from the standard cable transmitter is slightly more than 50% of the unit impulse period assigned to a code character.

The object of my invention is to provide means for increasing the marking period to any desired percentage of the full impulse period. The means for accomplishing this purpose may be embodied in the structure of the transmitting apparatus or it may be in the form of an attachment associated therewith.

The drawing illustrates a portion of a Wheatstone transmitter embodying my invention and showing also in diagram the local transmitting or sending-on relays controlled by the transmitter.

The contact mechanism of the Wheatstone transmitter will be recognized by those familiar with telegraph apparatus. The main driving gear 2 is actuated by any of the usual driving and governing mechanism, such as clockwork, weight-driven motors or electric motors. The tape-feeding star wheel 3 is driven through the pinion 4 and the rocker 5 through the pinion 6. On the downward stroke of the presser-bar 7 the lever arms 8 and 9 are rocked downwardly

upon the pivot rod 10, thereby lowering the pricker pins 12 and 14 and opening the contacts at 15 and 16. Upon the upstroke of the presser bar, the levers 8 and 9 are moved upwardly by their springs 17, thereby forcing the pins 12 and 14 against the message strip or tape 13. If at this instant there is a perforation in the lower side of the tape, the pin 14 will pass therethrough, thereby permitting the "dash" contacts at 16 to close a circuit from the positive pole of the battery 20 through conductor 33, contacts 16 conductor 21, and energizing coil *c* of the "dash" relay 23, to negative pole 24 of battery. The armature *a* of relay 23 swings against its right-hand contact, thereby connecting the negative pole of cable battery 25 through conductor 26 to cable C. The armature will remain against its right-hand contact until it is swung over against its left-hand contact by the stronger pull of the biasing coil *b*. For this purpose a circuit is constantly closed through the coils *b* of the "dot" relay 22 and the "dash" relay 23 from positive pole 20 through conductor 27 to negative pole 24, but which is normally rendered ineffectual by reason of a short-circuit around the coils *b* from the point 28 through conductor 29, contacts at 30 and conductor 33. When the cam dog 31, carried by the shaft 11, strikes the arm 34 and rocks the lever 35 about the pivot rod 10, the contacts at 30 are opened, thus opening the short-circuit around the coils *b* so that they become energized and move the armatures against their left-hand contacts. The cam dog 31 can be adjusted axially to any position with respect to the shaft 11 and clamped in any desired position by turning the thumb piece 32. In this manner the instant at which the contacts at 30 will be opened can be accurately determined and upon this depends the movement of the armatures from right-hand to left-hand contacts which determine the marking period. I am thus able to determine with absolute accuracy the length of the marking period and the corresponding earthing or curbing of the cable. The marking may be made any desired percentage of the time of the unit code impulse up to 100%.

The manner in which the "dot" relay will be energized if the pin 12 passes through a hole in the tape will be evident from the above explanation of the operation of the

dash pin and relay. In positions of the tape having neither dot or dash perforations, both pins will strike the tape so that neither contacts 15 or 16 are closed and the cable will remain grounded or earthed, or as it is termed, a "zero impulse" is sent to cable.

I claim:—

1. An automatic telegraph transmitter, comprising automatic contact making mechanism having selecting means cooperating with a perforated message strip for determining the character of a transmitted current impulse, transmitting relays having their energizing coils controlled by said selecting means, said relays having biasing coils operating counter to said energizing coils, and adjustable means actuated by said mechanism to render said biasing coils effective after the lapse of any desired interval from the operation of the energizing coils.

2. In an automatic telegraph transmitter of the Wheatstone type, the combination with a pair of contact levers carrying pins respectively adapted to pass through the dot and dash perforations of a signal tape, a signalling circuit having two branches one of which includes the dot signalling relay and the other the dash signalling relay, said relays each having a biasing coil opposing the actuating coil, said biasing coils being normally short-circuited, and an auxiliary lever normally spring actuated to close contacts included in the circuit of said biasing coils, and a cam operating to move said auxiliary lever to open said short circuit to permit the biasing coils to control the position of the armatures of said relays, said cam being circumferentially adjustable to any desired position.

In testimony whereof I affix my signature.
THOMAS FRANCIS FOLEY.