

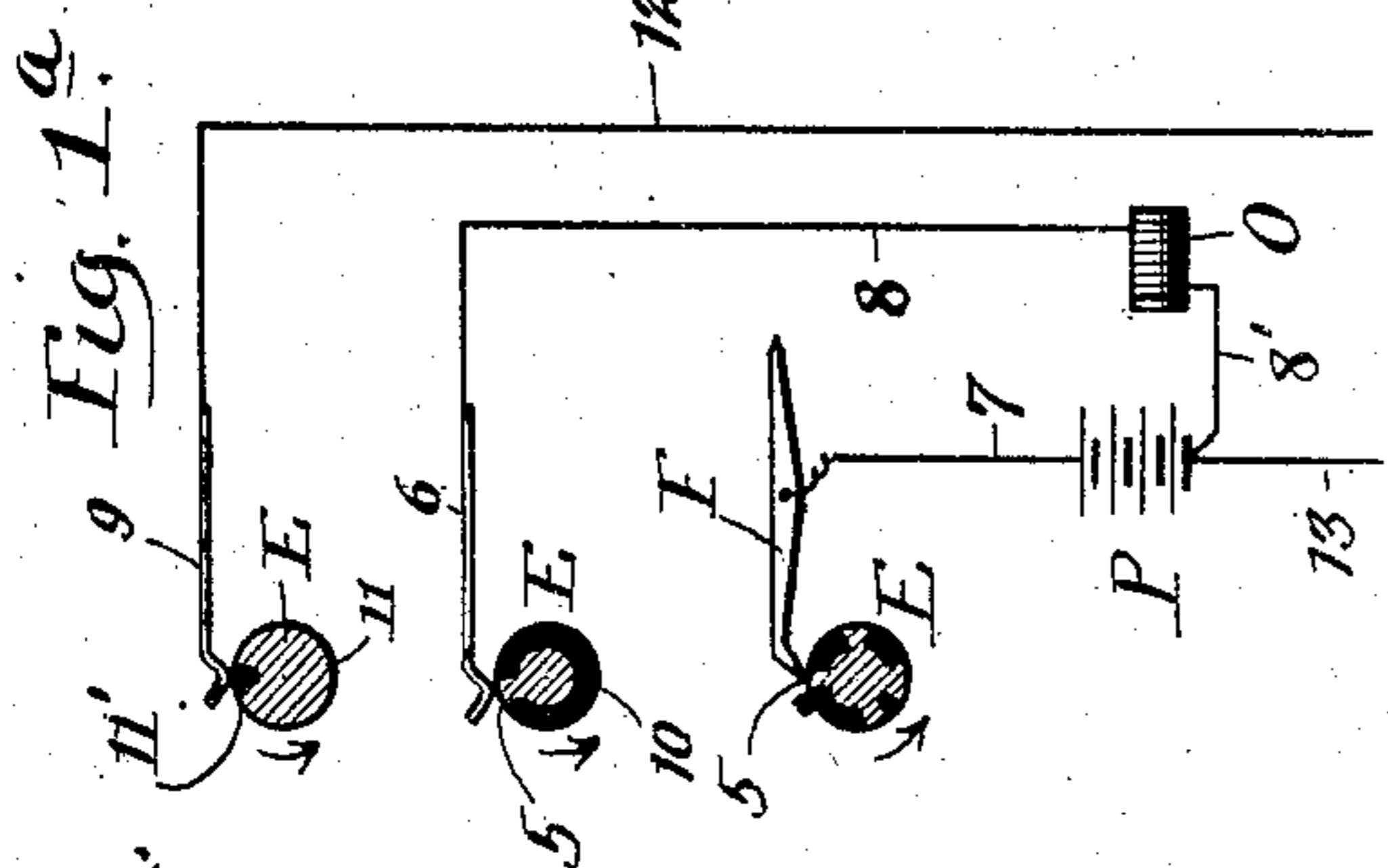
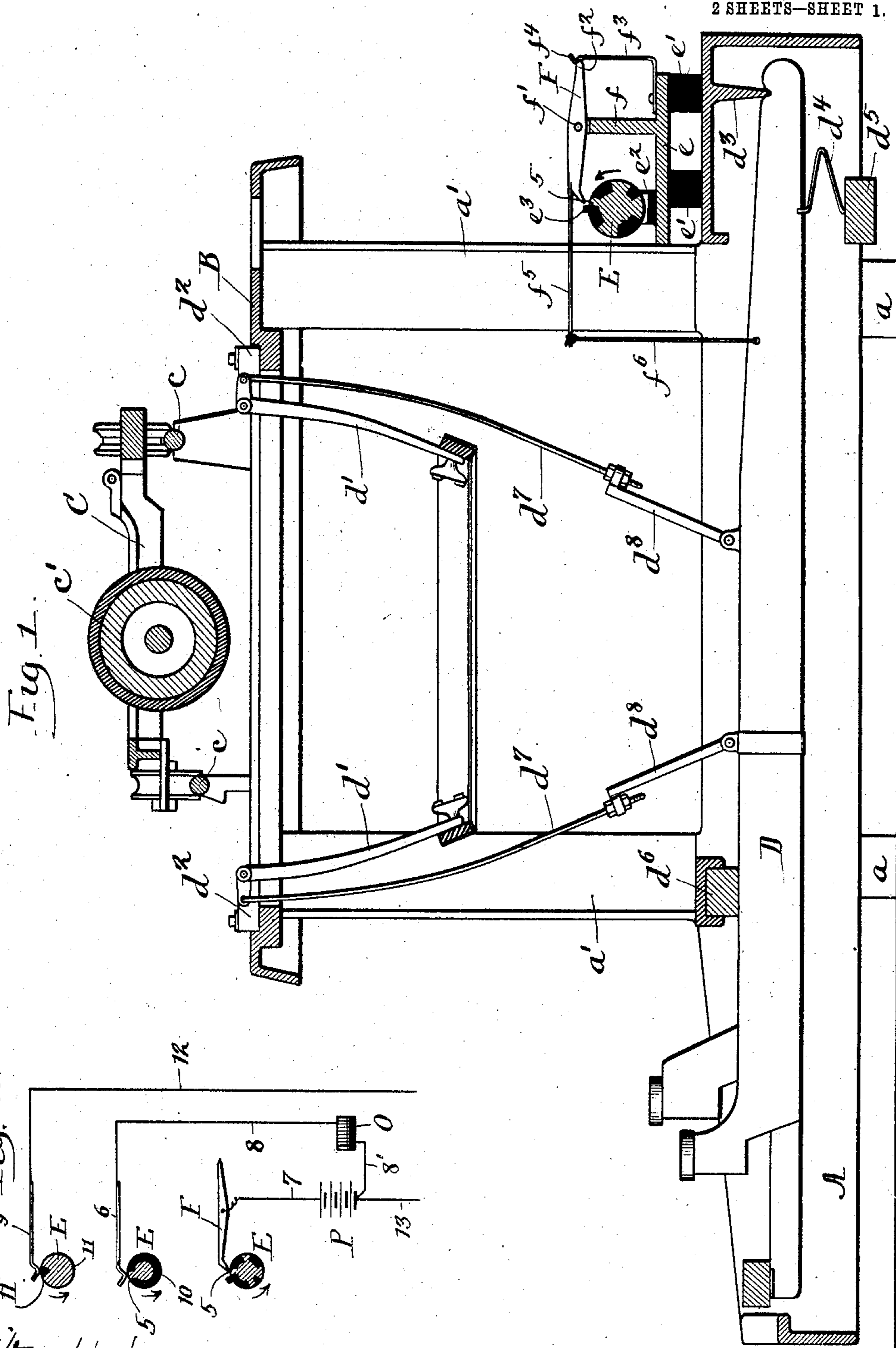
No. 791,413.

PATENTED MAY 30, 1905.

A. C. GILMORE.
TELEGRAPHIC TRANSMITTER.

APPLICATION FILED JAN. 29, 1902.

2 SHEETS—SHEET 1.



Witnesses:
Fred Gilack
Darius H. Alford

Inventor:
Alfred C. Gilmore
By Peirce & Fisher
his Attorneys.

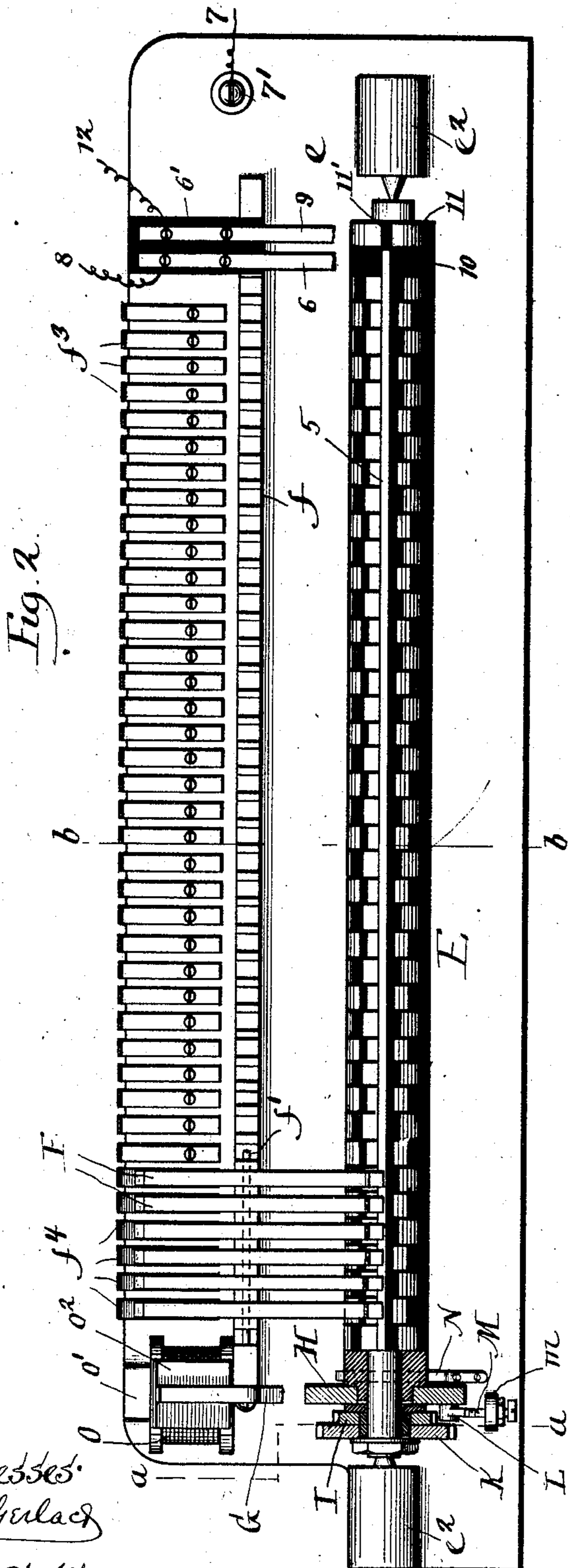
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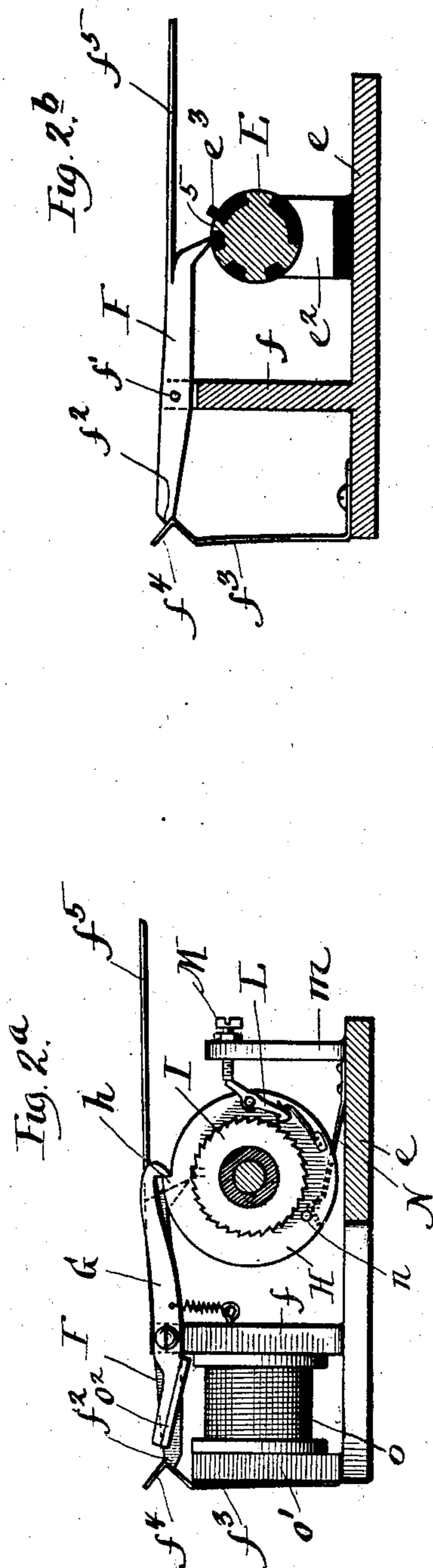
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TELEGRAPHIC TRANSMITTER.

APPLICATION FILED JAN. 29, 1902.

2 SHEETS—SHEET 2.



Witnesses:
Frederick
Parris H. Alford



Inventor:
Alfred C Gilmore
By Peirce & Fisher
his Attorneys.

UNITED STATES PATENT OFFICE.

ALFRED C. GILMORE, OF CHICAGO, ILLINOIS, ASSIGNOR TO JAMES H. PEIRCE, TRUSTEE, OF CHICAGO, ILLINOIS.

TELEGRAPHIC TRANSMITTER.

SPECIFICATION forming part of Letters Patent No. 791,413, dated May 30, 1905.

Application filed January 29, 1902. Serial No. 91,787.

To all whom it may concern:

Be it known that I, ALFRED C. GILMORE, of Chicago, Cook county, Illinois, have invented certain new and useful Improvements in Telegraphic Transmitters, of which the following is hereby declared to be a full, clear, and exact description.

The invention designs to operate an electric code-transmitter by a series of separate finger-keys similar to those of an ordinary type-writer, and is preferably in the nature of an attachment to a type-writer with the accompanying type-bars, paper-carriage, &c., so that a record of the message as it is sent over the line is printed upon the paper on the carriage and from which the accuracy of the message may be verified. The device may, however, be constructed without the type-bars and paper-carriage, so as to operate solely as a transmitter.

The improvement is designed to transmit the ordinary "dot" and "dash" signals of the Morse or a similar code and renders such signals uniform and distinct, and the improvement is particularly designed to be used in connection with my improved automatic printing-telegraph disclosed in my prior patent, No. 695,203, dated March 11, 1903.

The particular form selected to illustrate my invention is shown in the accompanying drawings and set forth in the following description, and the invention is particularly pointed out by the appended claims.

In the drawings, Figure 1 is a sectional view of the improved instrument in which it is applied to a type-writer of ordinary construction. Fig. 1^a is a diagrammatic illustration of the operating circuits. Fig. 2 is a plan view of the transmitting device with some of the switches removed and parts shown in section. Figs. 2^a and 2^b are sections on lines *a a* and *b b*, respectively, of Fig. 2.

The type-writer (see Fig. 1) comprises the base-frame A, mounted upon the supports or feet *a* and carrying the corner-uprights *a'*, which in turn support the usual top plate B. Carriage-guideways *c* are mounted upon the top plate B, upon which travels the paper-

carriage C, having the usual revolving paper-platen *c'*. Type-bars *d'* are pivoted in the usual manner to a ring *d²* on the top plate. Finger-keys D of the instrument are of the usual lever form arranged side by side and extend from the keyboard back to the common fulcrum *d³*. Springs *d⁴*, interposed between a suitable cross-bar *d⁵* and the separate key-levers, hold the latter in normal elevated position against stop-bar *d⁶*. Connecting-links *d⁷* are pivoted to the tailpieces of type-bars *d'* and are suitably secured to jacks *d⁸*, which in turn are pivoted to the separate key-levers. This is an ordinary form of type-writer construction and need not be more specifically described.

Upon a rear extension of the base-frame A is mounted the transmitter base-plate *e*, of metal, secured thereto and separated therefrom by suitable insulating-supports *e'*. Upon the plate *e* are carried the upwardly-projecting insulating-studs *e²*, having pointed cone-bearings for a rotatable contact-cylinder E. The contact-cylinder E is of metal and divided by pieces of inlaid insulating material into a series of cylindrical contact surfaces or rings one for each character of the code to be transmitted, (see Fig. 2,) and each ring is divided into a series of long and short contacts. (See Fig. 2^b.) The latter contact surfaces vary with each separate ring in keeping with the letter, character, word, or signal to be transmitted.

A metal upright *f* upon base-plate *e* has at its upper edge a series of projections, between which are pivoted upon a rod *f'* a series of transmitter-switches F, one for each ring or series of contacts of cylinder E, and with which the inner ends or toes of the transmitter-switches are adapted to engage. Switches F have V-shaped tailpieces *f²* and are normally held out of engagement with contact-cylinder E by upright spring-latches *f³*, suitably secured to base-plate *e* and provided at their upper ends with pointed offsets *f⁴*, which normally engage the upper faces of the V-shaped tailpieces *f²*. (See Figs. 1 and 2^a.) Each of the switches has a

forwardly-projecting spring-strip f^5 , which is connected by a flexible thread or wire f^6 to its corresponding key D, (see Fig. 1,) thus forming loose one-way connections between the key-levers and transmitter-switches—that is to say, when one of the key-levers is depressed the corresponding switch will be thrown into contact with the cylinder; but the return of the key-lever to its normal position does not affect the depressed switch. When one of the transmitter-switches F is thus depressed, it is held firmly into contact with the cylinder E by the pointed projection f^4 upon its corresponding spring-latch f^3 , which is pressed over the pointed end of the tailpiece f^2 and engages the under face thereof. (See Fig. 2^b.)

The contact-cylinder E is held in normal stationary position by a spring-held home stop or pawl G, centrally pivoted intermediate its ends on one end of upright f and arranged to engage a shoulder or notch h on the edge of a disk H, fixed to one end of but insulated from cylinder E. A ratchet-wheel I and a drive-gear K are fixed together and loosely journaled upon an insulated bushing on cylinder E adjacent the disk H. The gear K and ratchet I are continuously driven when the instrument is transmitting a message from a small spring or electric motor of suitable construction and an intermediate gear-train engaging the gear K. A spring-pressed pawl L is pivoted to the side of disk H near its periphery and in position to engage the ratchet I.

A stop or trip-pin M, adjustably threaded through a fixed upright m upon plate e is arranged to engage the tail of pawl L in the normal stationary position of cylinder E and disk H and to thus hold the pawl out of engagement with ratchet I. A spring-strip N, fixed to plate e , engages in normal stationary position of disk H a pin n on the disk and in such a manner that as soon as the home stop G is released a slight initial impulse or revolution is imparted to disk H and cylinder E by the spring N sufficient to disengage pawl L from trip-pin M and permit it to engage the teeth of the continuously-rotating ratchet I. The contact-cylinder E is thus rotated through one complete revolution until again arrested by the home stop or pawl G. Stop G is tripped whenever any one of the switches F is depressed by a magnet O, fixed between uprights f and a second upright o' , the armature o^2 of which is fixed to the tailpiece or stop G.

To complete the circuit through the magnet O, a metallic strip 5 (see Fig. 2) extends lengthwise of the cylinder and in the stationary position of the same directly beneath the contact ends of switches F. In this position, too, a spring contact or brush 6, mounted upon an insulating-block 6' on

plate e , engages the end of the metallic strip 5. When any one of the switches F is depressed, the circuit may be traced (see Fig. 1^a) from battery P by wire 7 to binding-post 7' on plate e , through the plate and upright f to the depressed switch F by strip 5 to brush 6, thence by wires 8 and 8' through magnet O back to battery P. Home stop G is thus tripped and contact-cylinder E rotated, as above described. The circuit through magnet O is broken as soon as the cylinder E has rotated through a slight angle, since the end of the strip 5 passes from under the brush 6 and the latter rests upon a ring 10, of insulating material, on the cylinder. The circuit is then traced from battery P, wire 7, depressed switch F, cylinder E to a second brush 9 (which in the stationary position of the cylinder rests upon an insulating-piece 11', but which as soon as the cylinder has rotated through a slight angle engages a metal contact-ring 11) and from brush 9 to wire 12, which is connected to the line or to a line-relay and by return-wire 13 or ground to battery P. The successive long and short impulses (dots and dashes) to complete the signal are produced by the variations in length of the metallic parts of the various contact-rings of cylinder E.

After the cylinder has completed a revolution and the signal given its movement is arrested in home or normal position by stop G, pawl L is thrown out of engagement with ratchet I by trip-pin M, and the depressed switch F is returned to its normal uplifted position by a projecting longitudinal strip e^3 of insulating material on cylinder E. This strip engages near the end of the revolution with any one of the switches F which may have been depressed to transmit a signal, swings it about its pivot, and depresses its tailpiece f^2 past the pointed projection f^4 of its latch f^3 , and thereby locking the switch in normal elevated position. The finger-keys D and switches F may thus be rapidly operated to transmit the desired message, and at the same time the type-bars d' will be actuated to record a copy of the message upon the paper on platen c' .

It is obvious that numerous changes could be effected in detail of structure without departure from the essentials of the invention. For example, the type-writer features could be omitted and the instrument used solely as a transmitter.

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

1. The combination with the individual finger-key and with the transmitter-switch corresponding thereto, of a retaining-latch normally holding said switch out of operation, a loose one-way connection intermediate said key and said switch, whereby said

switch is shifted into operation by said key but arranged to permit the independent return of said parts to normal position, and means for returning said switch to the normal.

2. The combination with the individual finger-key and with the transmitter-switch corresponding thereto, of a spring-pressed latch directly engaging said switch and arranged to hold the same both into and out of operative position, an operating connection between said key and said switch, whereby the latter is thrown into operation, and means, automatically operating, for returning said switch into its normal inoperative position.

3. The combination with the individual finger-keys and with the corresponding series of transmitter-switches, of retaining-latches normally holding said switches out of operation, loose one-way connections between said finger-keys and said switches, whereby any selected switch may be shifted into operation at the will of the operator, but permitting the independent return of the switches and finger-keys to normal and means common to all of said switches for returning the same to normal.

4. The combination with the individual finger-keys and with the corresponding series of transmitter-switches, of spring-latches directly engaging and arranged to hold said transmitter-switches both into and out of operative position, loose one-way connections extending between said finger-keys and said switches, whereby any selected switch may be thrown into operation, and means common to all of said switches for returning the same to their normal inoperative position.

5. The combination with a series of movable contact-surfaces and with a set of transmitter-switches cooperating therewith, of retaining-latches normally holding said switches out of engagement with said contact-surfaces, the set of individual finger-keys and connectors extending between said finger-keys and said switches, whereby the latter are shifted into engagement with said contact-surfaces by the operation of said keys, and means movable with said contact-surfaces and common to all of said switches for returning the same into engagement with said retaining-latches.

6. The combination with a set of movable contact-surfaces and with a set of pivoted transmitter-switches cooperating therewith, of spring-latches arranged to hold said switches both into and out of engagement with said contact-surfaces, the set of individual finger-keys and loose one-way connections extending between said finger-keys and said transmitter-switches, whereby the latter are moved into engagement with said contact-surfaces by operation of said keys, and means common to all said switches and mov-

ing in unison with said contact-surfaces for returning said switches into their normal inoperative position.

7. The combination with a set of movable contact-surfaces divided into a series of long and short contacts, corresponding to the various signals of a "dot" and "dash" signal-code, and with a set of transmitter-switches cooperating therewith, of retaining-latches normally holding said transmitter-switches out of operation, a series of separate finger-keys, and loose one-way connections extending between said finger-keys and said transmitter-switches whereby the latter are shifted into engagement with said contact-surfaces.

8. The combination with a rotatable contact-cylinder having a series of contact-surfaces and with a set of transmitter-switches cooperating therewith, of spring-latches arranged to hold said switches both into and out of engagement with said contact-surfaces, a set of finger-keys and connectors extending between said finger-keys and said switches, whereby said switches are thrown into engagement with said contact-surfaces by the operation of said finger-keys.

9. The combination with a rotatable contact-cylinder provided with a series of contact-surfaces and with a set of transmitter-switches cooperating therewith of retaining-latches normally holding said switches out of engagement with said contact-cylinder, of a set of finger-keys and loose one-way connections extending between said finger-keys and said switches, whereby the latter are thrown into engagement with said contact-cylinder by the operation of said keys, and means common to all of said switches and moving in unison with said contact-cylinder for returning said switches to their normal inoperative position.

10. The combination with a rotatable contact-cylinder having a series of contact-surfaces and with a set of transmitter-switches cooperating therewith, of retaining-latches arranged to hold said switches both into and out of engagement with said contact-cylinder, a series of finger-keys and loose one-way connections between said finger-keys and said switches, whereby the latter are shifted into engagement with said contact-cylinder, and a projecting strip of insulating material attached to said cylinder for engaging said switches and returning them into their normal inoperative position.

11. The combination with a rotatable contact-cylinder and with a set of transmitter-switches and finger-keys cooperating therewith, of a continuously-rotating driving member, and means common to all of said finger-keys and arranged to be actuated by any one of them for operatively connecting said driving member with said contact-cylinder to intermittently rotate the latter.

12. The combination with a rotatable contact-cylinder and with a set of transmitter-switches and finger-keys, cooperating therewith, of a continuously-rotating driving member, gearing for operatively connecting said driving member to said contact-cylinder for intermittently rotating the latter, and means controlled by the operation of said finger-keys for imparting a partial, initial revolution to said contact-cylinder for throwing said gearing into operation.

13. The combination with a rotatable contact-cylinder and with a set of transmitter-switches and finger-keys cooperating therewith, of a continuously-rotating driving member, gearing for coupling said driving member to said contact-cylinder to intermittently rotate the latter, a trip-off for holding said coupling-gearing out of operation and means controlled by the operation of said finger-keys for imparting a partial initial revolution to said contact-cylinder for disengaging said coupling-gearing from said trip-off.

14. The combination with a rotatable contact-cylinder and with a set of transmitter-switches and finger-keys cooperating therewith, of a continuously-rotating driving member, gearing for coupling said member to said contact-cylinder to intermittently rotate the latter, a stop or trip-off for holding said coupling-gearing out of operation, means for imparting a slight initial movement to said cylinder to disengage said gearing from said trip-off, a home stop for said cylinder and means for releasing said home stop controlled by the operation of said finger-keys.

15. The combination with a rotatable contact-cylinder and with a set of transmitter-switches and finger-keys cooperating therewith, of a continuously-rotating driving member, pawl-and-ratchet mechanism for coupling said member to said contact-cylinder, a trip-off for said pawl, means for imparting a slight initial movement to said cylinder to disengage said pawl from said trip-off, a home stop for said cylinder and means for releasing said home stop controlled by the operation of said finger-keys.

16. The combination with a rotatable contact-cylinder and with a set of transmitter-switches and finger-keys cooperating therewith, of a continuously-rotating driving member, pawl-and-ratchet mechanism for coupling said member to said contact-cylinder, a trip-off for said pawl, means for imparting a slight initial movement to said cylinder, a home stop for said cylinder, an electromagnet for releasing said home stop and an energizing-circuit for said magnet controlled by the relative movement of said transmitter-switches and said contact-cylinder.

17. The combination with a rotatable contact-cylinder and with a set of transmitter-switches and finger-keys cooperating therewith, of a continuously-rotating driving member, pawl-and-ratchet mechanism for coupling said driving member to said contact-cylinder to intermittently rotate the latter, a stop-pin or trip-off for said pawl, a spring arranged to impart a slight initial movement to said cylinder to disengage said pawl from said trip-off, a home stop for said cylinder and means for releasing said home stop controlled by the operation of said finger-keys.

18. The combination with a rotatable contact-cylinder and with a set of transmitter-switches and finger-keys cooperating therewith, of a continuously-rotating drive-gear loosely journaled on the end of said cylinder, a ratchet fixed to said gear, a spring-held pawl for engaging said ratchet pivoted to said cylinder, a fixed trip-off for said pawl, a spring arranged to impart a slight initial movement to said cylinder to release said pawl from said trip-off, a pivoted home stop for said cylinder, an electromagnet arranged to release said home stop and an energizing-circuit for said magnet controlled by the relative movement of said transmitter-switches and contact-cylinder.

19. The combination with a series of contact-surfaces and with a set of transmitter-switches cooperating therewith, retaining-latches normally holding said transmitter-switches out of engagement with said contact-surfaces, and with a set of type-bars, of a set of individual finger-keys, loose one-way connections extending between said finger-keys and said transmitter-switches, and links extending between said finger-keys and said type-bars, whereby said type-bars are operated and said transmitter-switches are shifted into engagement with said contact-surfaces simultaneously by the operation of said finger-keys.

ALFRED C. GILMORE

Witnesses:

HARRY L. CLAPP,
ALBERTA ADAMICK.