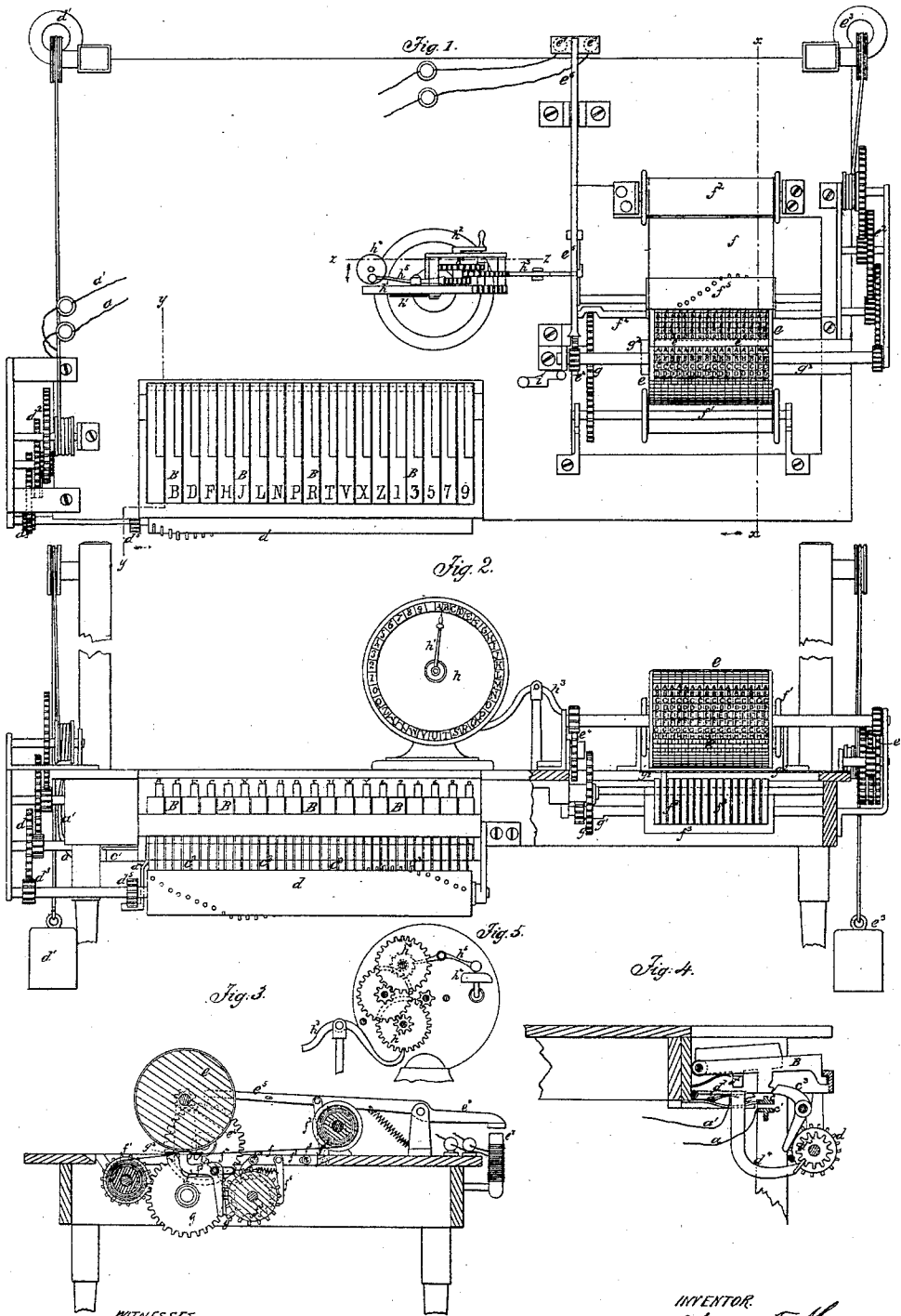


C. T. MOORE.
 Printing Telegraph.

No 94,329.

Patented Aug. 31, 1869.



WITNESSES
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IMPROVEMENT IN PRINTING-TELEGRAPHS.

Specification forming part of Letters Patent No. 94,329, dated August 31, 1869.

To all whom it may concern:

Be it known that I, CHARLES T. MOORE, of White Sulphur Springs, in the county of Greenbrier and State of West Virginia, have invented a new and Improved Printing-Telegraph Machine; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification.

The object of this invention is to provide an improved printing-telegraph apparatus which will be rapid and reliable in its operation.

It consists of a set of sending apparatus, a set of receiving and printing apparatus, and a set for "calling" the office or station to which the message is to be sent, all conveniently arranged upon a stand and adapted to work in conjunction with similar machines at all the stations, and capable of communicating with all the stations simultaneously or with only one, as required, all as hereinafter more fully specified.

Figure 1 represents a plan view of my improved machine. Fig. 2 represents a front view partly in elevation and partly in section. Fig. 3 represents a transverse section taken on the line xx of Fig. 1. Fig. 4 represents a section on the line yy ; and Fig. 5 represents a section through the calling apparatus, taken on the line zz .

Similar letters of reference indicate corresponding parts.

For opening and breaking the circuit through the wires $a a'$ a system of keys similar to those of a piano are employed, but in number representing all the letters of the alphabet, all the numerals, one blank, and pauses, and each key is marked with its designating character. Any one of these keys, when pressed down by the fingers, will close the circuit by forcing the metal plates $c c'$ together, the wires $a a'$ being, respectively, connected to them. The plate c is fixed in its position; but the plate c' is supported on springs c^2 , which yield to the force of the keys when pressed down to close the circuit, but spring up again, separating the plates and breaking the circuit, when the keys rise. The latter are forced up by any suitable springs.

Each time a key is pressed down to close the circuit it is caught by a weighted lever c^3 , (one being provided for each key,) which holds it down and the plates together until the pin corresponding to the key on the discharging-cylinder d , which is set into motion at the instant the circuit is closed, moves around against the catch-lever c^3 and disconnects it from the key, and thus breaks the circuit. The pins of this cylinder d are placed in a helical line around the cylinder, extending from end to end, so as to act in succession upon the catch-levers. The said cylinder is set in motion by a weight d^1 , attached by a cord to a winding-drum on a system of gears d^2 , which connect with the shaft of the drum by a pinion a^3 . When the circuit is broken, the cylinder is prevented from revolving by a pawl d^4 , which springs into a notched or toothed wheel d^5 when the keys are up, but which is forced out by the downward movement of any one of the keys, which are provided with lugs d^6 to strike upon a long bar d^7 , running under the keys, and to which the pawl d^4 is connected. The spring d^8 throws the bar d^7 up when the keys rise and causes the pawl to engage the wheel d^5 .

For receiving and printing the message a cylinder e is employed having the letters of the alphabet, succeeded by the numerals, arranged in type on the face in any preferred number of rows around the said cylinder, the said rows encircling the cylinder except the space of one letter or figure, as shown at e' . This space is slightly recessed to prevent it from taking ink, and is intended for dividing words. This cylinder is connected to a system of gears e^2 , precisely similar to that working the barrel d , and also similarly weighted at e^3 . The cylinder e is also provided with a notched wheel e^4 , arranged to be arrested by a pawl-arm e^5 when the current is broken. This pawl-arm is a projection from the armature e^6 , which is drawn down by the magnets e^7 when the circuit is closed, thus releasing the resistance to the action of the weight e^3 at the same time that the pawl d^4 is disengaged from the barrel or cylinder d . As these two sets of weight-operated gears are precisely similar, it follows that when the two cylinders are so set

that the pin on the one representing any given letter or figure and the corresponding figure or letter on the other will coincide at any given points the same relation will afterward be maintained between the said cylinders.

The paper f to be printed on passes under the printing-cylinder e from one roller f' to another f'' . The latter is operated to draw the paper along in a manner which will be presently stated. Below the paper a series of pressing-levers f^3 are suspended upon an axis f^4 and arranged to be pressed up against the cylinder by the pins of a cylinder f^5 , parallel with the cylinder e and operated by the armature-lever when it moves down to arrest the movement of the cylinder e .

The pawl f^6 , which engages the toothed wheel on the axle of barrel f^5 , is connected to a lever f^7 , pivoted at f^8 and connected to the armature by a link f^9 . The said pawl is held in contact with the teeth of the notched wheel by a spring, and a holding-panel f^{10} is provided.

Any number of rows of letters and figures on the barrel e may be used, as preferred; but it is intended to be equal to or greater than the greatest number of letters found in any word, and the pressing-levers f^3 are as many as the rows of letters. Likewise the number of pins in the cylinder f^5 is equal to the levers, and the teeth in the wheel for operating the barrel f^5 are equal in number to the pins.

g represents a toothed wheel supported on a stud in a suitable place to be moved a short distance by a bent pin or lug g' , projecting from the pinion on the shaft of the cylinder f^5 . At each revolution of the said cylinder this wheel g gears with a pinion on the shaft of the paper-winding roller f , and thus imparts the necessary intermittent motion as the paper is printed. To avoid smearing the paper adjacent to the point where the letter is to be printed, the paper is passed below a thin strip of sheet metal or other substance g^2 , having holes coincident with the ends of the printing-levers interposed between the levers and the face of the cylinder e . This prevents the contact of the paper with the cylinder, except what is pressed through the holes in the plate. The two sets of apparatus thus constructed being wound up and set for operation, with the pin on the cylinder d for the blank-key opposite to the lever c^3 of the latter and the blank space e' of the cylinder e opposite the ends of the pressing-levers, will be simultaneously set into motion by their respective weights when the circuit is closed by pressing downward one of the keys, and when the pin on the cylinder d corresponding to the key pressed down arrives at the place to act on the catch-lever for discharging it the row of letters on the cylinder e corresponding to the letters of the said key will arrive at the point where the printing takes place above the operating ends of the pressing-levers, so that

as the circuit is broken and the pawl end of the armature-lever falls into the notch of the wheel e^4 the cylinder f^5 will be moved one degree by the pawl f^6 , throwing one of the pressing-levers f^3 up, pressing the paper against the cylinder to receive the impression of the required letter. This operation continues until a line has been printed across the paper, when it will be moved forward for the commencement of another row, beginning at the left.

For designating the different offices or stations along a line a dial h and indicating apparatus are used, as follows: The said stations are represented by letters or figures on the dial, over which a pointer h' is caused to work by a spring and clock-work, as shown in Figs. 1 and 5. The said letters and figures on the dial are arranged in the same order as on the keys and the clock-work or gearing is the counterpart of that at d^2 . This gearing may be operated by a weight instead of the spring, as the other sets are. The said spring is inclosed in a barrel, as shown at h^2 .

A pawl-lever h^3 , operated by the armature, is arranged to drop into the teeth of one of the wheels h^4 of the pointer-moving device to arrest the pointer when it arrives at the letter or figure representing the station which it is desired to "call." The said pawl is disconnected from the wheel to allow it to move by the opening of the circuit similarly to the disconnection of the armature from the wheel e^4 .

i represents a cut-out, which may be swung around into the teeth of the wheel e^4 to prevent the operation of the cylinder e when the messages are designed for other stations.

An alarm for calling the attention of the attendants, consisting of a bell h^4 , a hammer h^5 , and a tappet-wheel h^6 , may be provided in connection with the indicating apparatus, as clearly shown in Fig. 5, to be set in motion by the operating-gears for the pointer h' .

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

1. The combination, with a set of keys or other instruments arranged, substantially as described, for closing the circuit, of a breaking toothed cylinder and a printing-cylinder arranged to be operated simultaneously with and relatively to the breaking-cylinder by means substantially as specified.

2. The combination, with a set of keys arranged to open the circuit, as described, of a toothed breaking-cylinder and a set of weighted actuating-gears d^2 , substantially as specified.

3. The combination, with a set of keys arranged to open the circuit, as described, of a toothed breaking-cylinder and a spring or weight actuated indicating apparatus arranged for operation simultaneously with and relatively to the said breaking-cylinder, substantially as specified.

4. The combination, with the bars c and c' ,

for opening and breaking the circuit, of the keys *b*, catch-levers *c*³, pawl *d*⁴, vibrating bar *d*⁵, and breaking-cylinder *d*, all substantially as specified.

5. The combination, with the type-cylinder *e*, arranged for rotation, as described, of the pressing-levers *f*⁶, toothed cylinder *f*⁷, and armature, when arranged substantially as specified.

6. The cut-out *i*, arranged for engaging with the wheel *f*⁴ to prevent the movement of the type-cylinder, substantially as specified.

The above specification of my invention signed by me this 1st day of April, 1869.

CHARLES T. MOORE.

Witnesses:

RO. P. LAKE,
DAVID WATTS.