

(No Model.)

H. LYON.  
TELEGRAPH TRANSMITTER.

No. 283,716.

Patented Aug. 21, 1883.

Fig. 1.

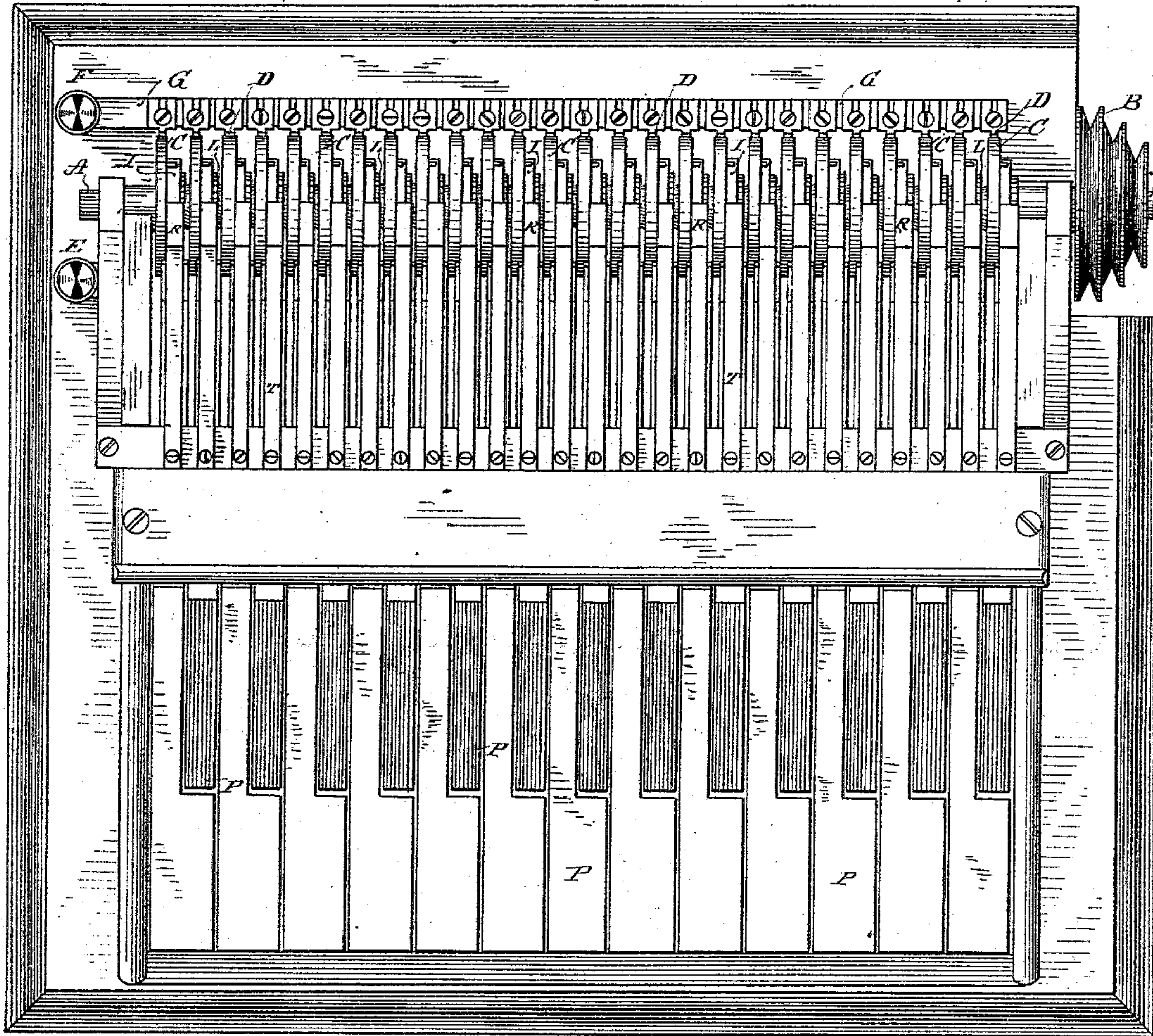
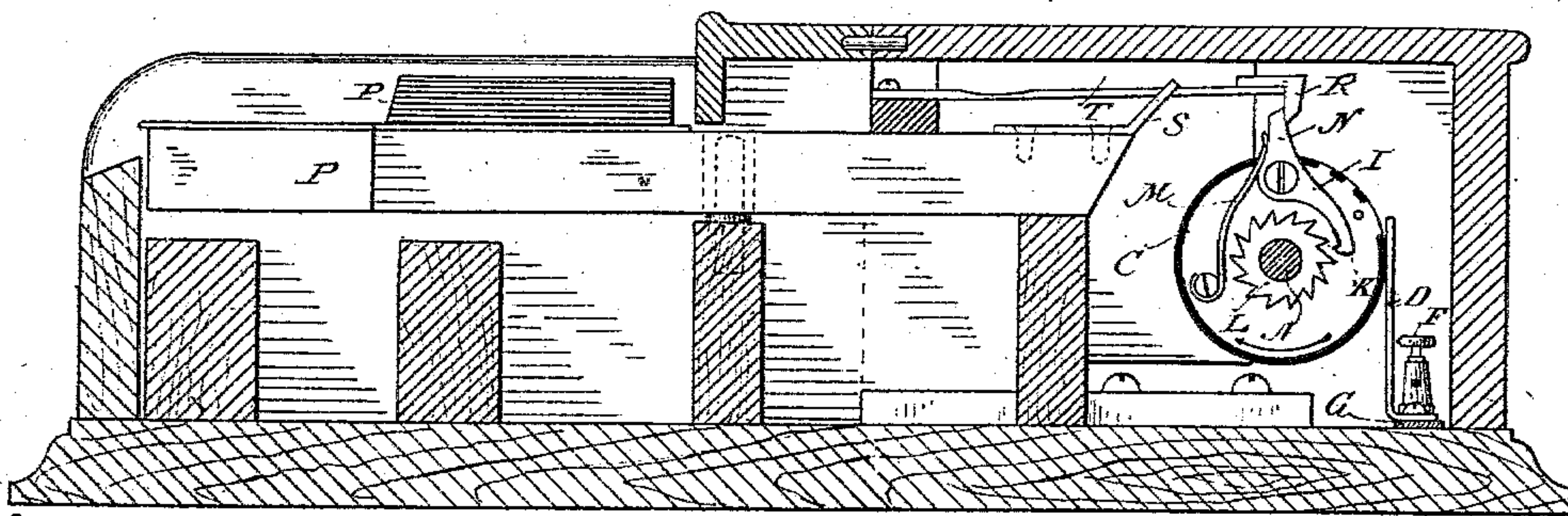


Fig. 2.



Witnesses:

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# UNITED STATES PATENT OFFICE.

HENRY LYON, OF NEW YORK, N. Y., ASSIGNOR TO THE AMERICAN POSTAL TELEGRAPH COMPANY.

## TELEGRAPH-TRANSMITTER.

SPECIFICATION forming part of Letters Patent No. 283,716, dated August 21, 1883.

Application filed May 18, 1883. (No model.)

*To all whom it may concern:*

Be it known that I, HENRY LYON, a citizen of the United States, and a resident of New York, in the county of New York and State

5 of New York, have invented certain new and useful Improvements in Telegraph-Transmitters, of which the following is a specification. My invention relates to automatic telegraph-transmitters of the general class in which the

10 simple depression of a key or lever causes the appropriate number of dots or dashes for any letter of the alphabet, or other character or signal, to be automatically transmitted without further volition on the part of the operator. Instruments of this class are now well known. The older forms thereof consist of a cylinder bearing in different longitudinal positions the make and break spaces for the various letters, and having arranged before or above it a cor-

20 responding number of keys, each of which, so long as depressed, holds a circuit-closing spring against the cylinder at the proper position to cause the appropriate makes and breaks of circuit. The cylinder in this case revolves constantly, and the keys must be kept depressed during all the time that the character is being transmitted. In another form of the apparatus a cylinder carrying all the transmitting, circuit closing and breaking spaces, or suitable devices for acting on circuit-clos-

30 ing levers at the appropriate times or intervals, is normally at rest, but is coupled to a constantly-revolving shaft when any key-lever is depressed at the same time that the transmitting apparatus for the proper letter is set into proper position to transmit the signal. Both of these arrangements are cumbersome, and admit only of a limited speed of transmission.

40 The aim of my invention is to make a transmitter that shall be simple and effective, and capable of operation at high speeds; and to this end my invention consists in mounting upon a common constantly-revolving shaft a series of transmitter disks or wheels, each provided with suitable means, whereby it will, when revolved, produce the appropriate number and character of makes and breaks for the signal or character which it is desired to trans-

50 mit, and a series of levers or detents—one for each disk or wheel—arranged to normally pre-

vent said disks from moving with the shaft; but when depressed, to release their appropriate disk, so that said disk may move with the shaft and send the proper signal.

55 As a preferred manner of carrying out the invention, I propose to employ for each disk a suitable clutch that normally tends to unite the disk and the shaft, and is mounted preferably on the disk, but is held normally out of engagement with the shaft by the particular detent-lever controlling the operation of the disk, so that when the lever is operated or depressed, no matter for how short a time, the clutch will be released and join the disk

60 to the shaft, and the two will revolve together through a whole revolution, until the clutch resumes a position where it may be again engaged by the detent-lever, which has in the meantime resumed its normal position.

70 My invention consists, further, of certain improvements and combinations of devices for carrying out my invention that will be hereinafter more particularly specified.

In the accompanying drawings, Figure 1 is a top view of the apparatus. Fig. 2 is a cross-section on the line 2 2, Fig. 1.

A indicates a revolving shaft mounted in suitable bearings, and kept in constant rotation by any suitable power applied at wheel

80 B, or otherwise. C C C indicate a series of transmitter disks or wheels mounted loosely on shaft A, and each provided with or constructed to operate suitable devices, whereby a predetermined series of makes and breaks, appropriate for the

85 transmission of a desired signal, may be produced. In the present instance each wheel is supposed to transmit the Morse character, indicating one of the letters of the alphabet, and the desired makes and breaks are produced

90 by means of a spring, D, (one for each disk,) bearing against the edge or face of the disk, which latter is provided with the usual or proper conducting-spaces, so that when the disk revolves the proper signal will be trans-

95 mitted. The shaft, and therefore the disks, are connected with one pole of the battery-circuit by binding-post E, in connection with the frame for the shaft, while the springs D

100 are mounted on a conducting-strip, G, connected through the receiving apparatus with



the other pole by binding-post F. The transmitting disks or wheels are each provided with suitable means, whereby, if the wheel be left free to move, it will partake of the movement of shaft A and rotate with it. In the present instance the device by which this is accomplished consists of a coupling device composed of clutch I, pivoted on the side of the disk, and having an engaging toe or surface, K, for engagement with the toothed or other surface of a disk, L, keyed to the shaft A. A spring, M, applied to the arm N of the clutch or coupling lever serves to throw the toe K against the surface of L when the lever is released, so as to cause the disk and shaft to revolve together, but is prevented from so doing by a detent or catch, with which the arm N engages, and which is carried or operated by a key or detent-lever. The key or detent-levers are indicated at P, and are pivoted or fulcrumed on a suitable frame or support, and provided with retractor-springs. In the present instance the spring is a spring, T, bearing on a fork, S, attached to the end of the lever. The spring T also carries a catch or detent, R, which latter is normally depressed by the spring, so that when there is no pressure upon the opposite end of the lever, the catch or detent R will be in the path of and engage with the clutch or coupling-lever, so as to hold the latter out of action; but when the key or detent lever is operated against the pressure of spring T, the detent R will be raised.

The general operation is as follows: While the keys or levers P are at rest, and the shaft ~~N~~ is revolving in the direction of the arrow, Fig. 2, the arms of the clutch-levers will be in engagement with the catches R, so that the disks cannot revolve with the shaft. The slight tendency of the disks to revolve, owing to their frictional bearing on the shaft, will moreover tend to draw the arms N against the catches or detents R, thus raising the toes or clutch-surfaces from the friction or toothed disks against the action of the springs M. The springs D normally rest on insulating-spaces on the disks. If now any key be depressed, the catch R will be raised, the arm N will be released, and the spring M will immediately bring the clutch or coupler into connection with the shaft, and the disk will make a whole revolution with the shaft, until the arm N comes against the stop or catch R, (which has in the meantime resumed its normal position, owing to the removal of the operator's finger from the key or detent lever,) whereupon the wheel or disk will be immediately stopped and uncoupled from the shaft. The shaft may be revolved at high speed and signals transmitted with great rapidity, since under this condition no special care need be taken by the operator to prolong the intervals between the operation of successive keys.

I do not limit myself to any particular kind of clutch or coupling device nor to any particular form thereof, the gist of my inven-

tion consisting in the combination wherein a constantly-revolving shaft is employed with the series of independent transmitter-disks mounted loosely thereon and normally held from rotation therewith by a corresponding series of keys or detent-levers, but allowed to rotate with the shaft upon the operation of the key appropriate to the particular disk whose signal is to be sent; nor do I limit myself to the form or kind of transmitter-disk or wheel and circuit-closing spring, since other devices might be employed for transmitting the predetermined signal by the rotation of a wheel or disk.

What I claim as my invention is—

1. The combination, with each of a series of independent transmitter wheels or disks mounted on a common constantly-revolving shaft, of a transmitting key or lever provided with a stop or detent that normally prevents the disk from turning with the shaft, but releases said wheel to allow the shaft to turn it upon the operation of the key or lever.

2. The combination, with each of a series of transmitter wheels or disks mounted on a common revolving shaft, of a catch or detent-lever that normally holds said wheel from revolving with the shaft, and a coupling device for coupling the wheel and shaft normally disengaged, but released to allow the wheel and shaft to revolve together upon the depression of the detent-lever.

3. The combination, with the constantly-revolving shaft, of the transmitter wheel or disk carrying a coupling device, whereby the wheel may be coupled to the shaft so as to revolve with it, and a detent-lever provided with a catch or stop normally in the path of the coupling device, whereby the wheel may be simultaneously uncoupled and stopped.

4. The combination, substantially as described, of a series of independent transmitter wheels or disks mounted on a common constantly-revolving shaft, and each provided with means whereby it may be made to revolve with the shaft when released, and a series of detent keys or levers, one for each disk, that normally hold said disks from revolving with the shaft, as and for the purpose described.

5. The combination, substantially as described, of a series of independent transmitter disks or wheels mounted on a common revolving shaft, a coupling device on each wheel that tends to unite it with the shaft, and a series of detent keys or levers normally engaging with said coupling devices, as and for the purpose described.

6. The combination, with a series of transmitter disks or wheels mounted on a common revolving shaft, a clutch-lever, one for each disk, mounted thereon and normally tending to engage with the shaft, and a series of keys or levers, each provided with a catch or detent arranged in the path of the clutch-lever for its appropriate transmitter-disk.

7. The combination, with a series of transmitter disks or wheels mounted on a common



revolving shaft, a clutch-lever on each wheel provided with an engaging toe or surface for engaging with a revolving disk or surface upon the shaft, a spring normally tending to produce such engagement, and an arm extending from the clutch-lever and moving in the path of a stop or catch operated by a detent lever or key, as and for the purpose described.

8. The combination, substantially as described, of a series of transmitter-wheels mounted on a common shaft, a series of toothed disks

upon such shaft, clutch-levers, one for each wheel, and a series of detent or transmitter levers.

Signed at New York, in the county of New York and State of New York, this 17th day of May, A. D. 1883.

HENRY LYON.

Witnesses:

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