

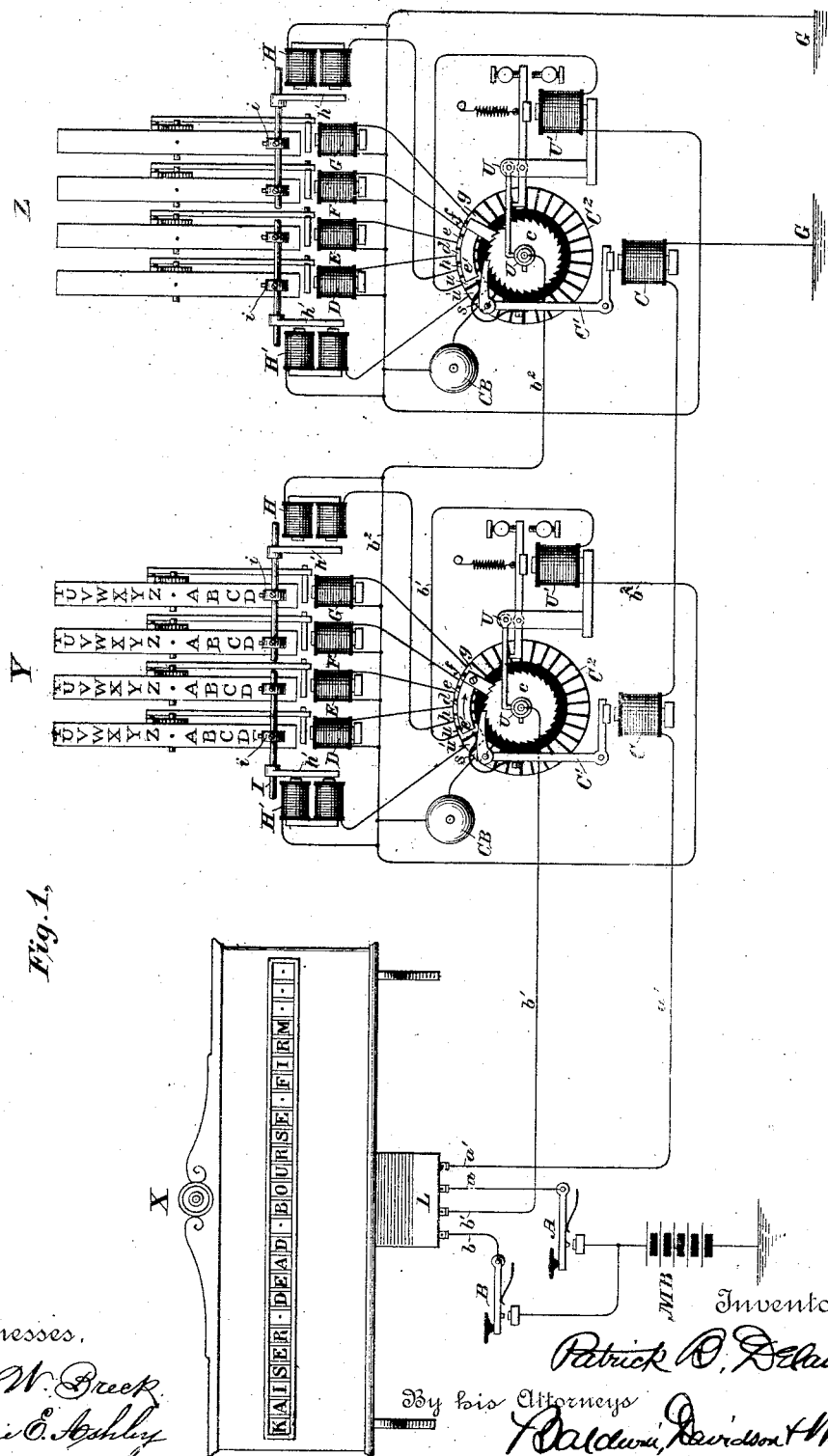
(No Model.)

3 Sheets—Sheet 1.

P. B. DELANY.
ELECTRICAL BULLETIN.

No. 386,189.

Patented July 17, 1888.



Witnesses.

Geo. W. Dreck.
Garnie C. Ashley.

Inventor.

Patrick B. Delany.

By his Attorneys

Baldwin, Davidson & Wright.

(No Model.)

3 Sheets—Sheet 2.

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Fig. 3.

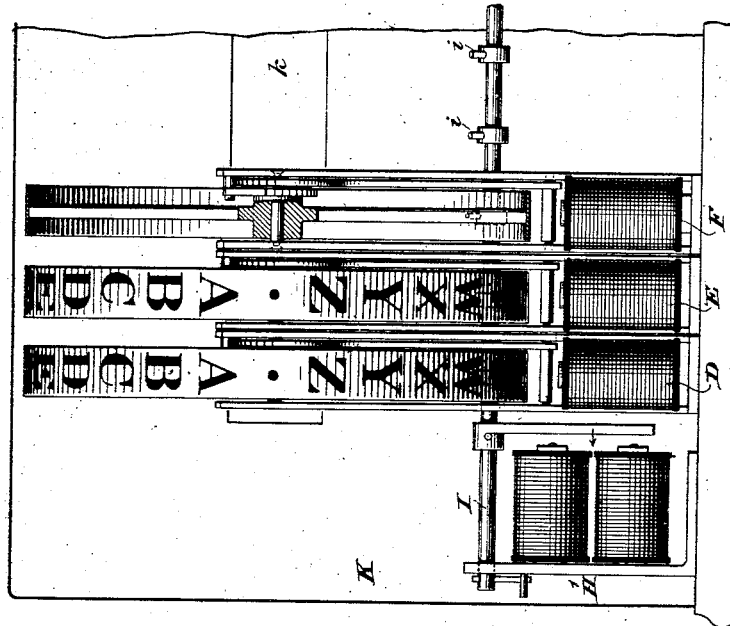
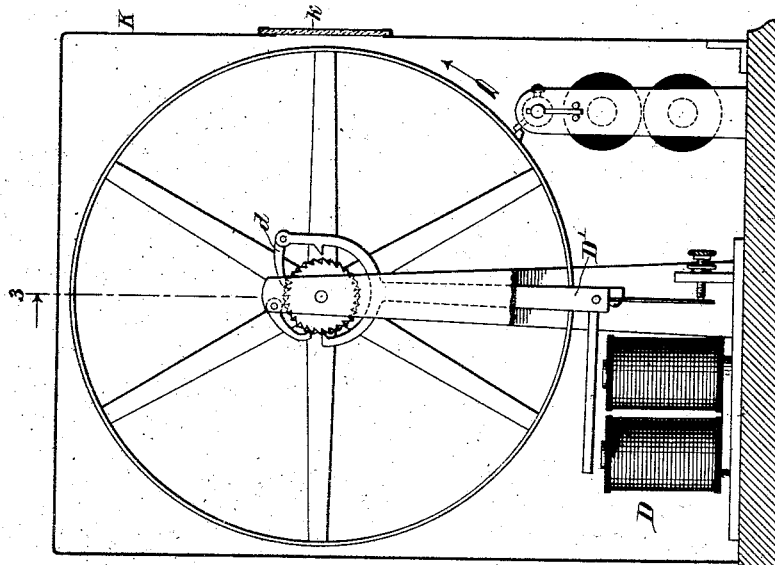


Fig. 2.



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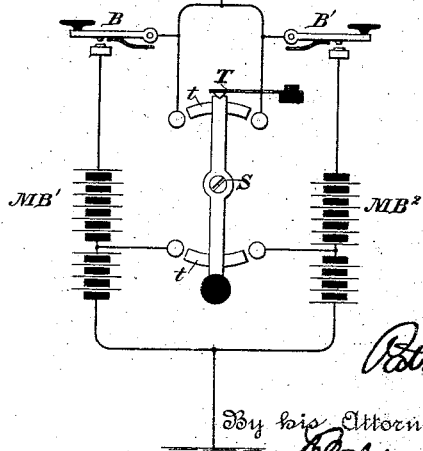
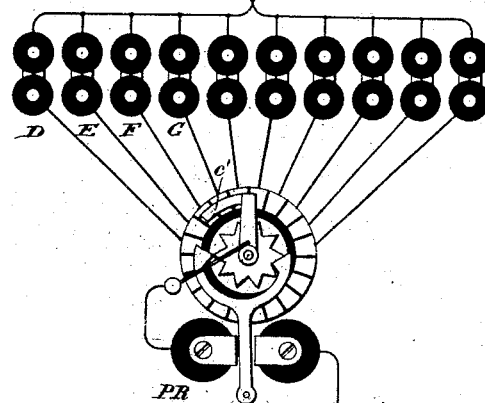
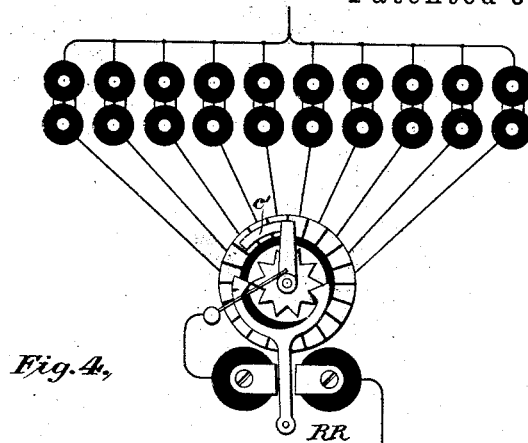
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UNITED STATES PATENT OFFICE.

PATRICK B. DELANY, OF NEW YORK, N. Y.

ELECTRICAL BULLETIN.

SPECIFICATION forming part of Letters Patent No. 386,189, dated July 17, 1888.

Application filed April 3, 1888. Serial No. 269,472. (No model.)

To all whom it may concern:

Be it known that I, PATRICK B. DELANY, of New York city, New York, a citizen of the United States, have invented a new and useful Electrical Bulletin, of which the following is a specification.

The object of my invention is to provide a system for the dissemination of news, having a central office at which all current matters of interest are reported, and bulletins located at subscribers' stations and capable of being operated from the central office to indicate or display to the observer the transmitted information.

In carrying out my invention I employ a number of wheels arranged in parallel vertical planes, and having the letters of the alphabet and such other matter as may be desired marked upon their peripheries, and I control these wheels from the central office, through suitable distributing or selecting apparatus, in such manner as to successively operate each wheel to display the required letter or character. This may be accomplished by the use of either a double or single circuit, and I may use, as I do by preference, suitable signaling and unison apparatus. All this appears fully from the following specification.

The accompanying drawings illustrate one practical and efficient embodiment of my invention; but I do not in all respects limit myself to the specific construction, though the organization shown is in general outline the best of which I am now aware.

Figure 1 is a diagram view illustrating a central-office station and two outlying or subscribers' instruments operated by a double circuit. Fig. 2 is an end view of so much of the bulletin apparatus as is necessary to illustrate the manner of operating the wheels and working the unison of the bulletin-wheel. Fig. 3 is a rear view of several of the bulletin-wheels and their actuating apparatus. Fig. 4 is a diagram view illustrating a single-circuit arrangement for working the instruments, and Fig. 5 is a detail view showing the trailer bridging from one segment to another.

Referring to Fig. 1, X represents a central-office bulletin displaying the news, "Kaiser dead. Bourse firm."

Y and Z respectively indicate so much of a subscriber's bulletin as is required for illus-

tration of the invention; but let it be assumed that at these stations the bulletin-wheels are at unison, as illustrated, and will be operated one by one in conjunction with the wheels of the central-office bulletin to display the same item. The operation at the central-office bulletin X is the same as that which takes place at the bulletins Y and Z. At the central station the battery MB is connected with the stop of each key A and B. The key A is included in a circuit, a a' , extending from the key through the operating-magnets CC of the distributors of the respective bulletins to ground. Each magnet C has a pivoted armature, C' , whose pawl engages the teeth of a driving ratchet-wheel, c , fast on a spindle carrying a trailer or circuit-completer, c' , which is thus caused to traverse a table, C'' , of insulated contacts. Upon each depression of the key A the trailer c' of every bulletin in the circuit is caused to pass from one insulated contact in its circle to the next contact. The table of contacts of each distributor or selector may of course contain any desired number of segments. I have shown but thirty, and consider these a sufficient number to display upon the bulletin in a concise manner any item that it is desired to transmit. Each distributor is provided with an ordinary Edison worm-unison, U, arranged to permit two full revolutions of its shaft. The circuit of the unison-magnet U' is from the line b' through the trailer, segment u , and unison-magnet, the continuation b'' of this line being the main line and leading to the spindle or trailer of the next distributor, and so on to ground. Obviously by manipulating the key A a sufficient number of times all the instruments may be brought to unison with the trailers c' on the unison-segments u' . By the depression of the key B the line $b b' b''$ will be completed from the battery MB through the various magnets U' to ground, and the unison-stops thrown off all the instruments. They will then be in readiness for the reception and display of any item of news transmitted. The depression of the key A will cause the movement of all the trailers c' from the unison-segment u to the next segment, h , connected through the coils of a magnet, H, which serves to remove the unison-stops from the paths of the several bulletin-wheels in the following manner: The armature h' of the magnet H is

fast upon an endwise-sliding shaft, I, carrying a number of adjustable collars, *i*, adjustably secured to the shaft by set-screws, as shown, one for each wheel, having stops against which corresponding projections on the bulletin-wheels abut when the wheels are at unison. This detail of construction is clearly seen in Fig. 2. The bulletin-wheels all being at unison, the unison-stops are simultaneously removed from all the wheels by the energizing of the magnet H and the consequent endwise shifting of the shaft I. The unison-magnet H is energized when the key B at the central station is depressed and the trailer is on the contact *h*.

In the drawings I have shown four segments, *d e f g*, respectively connected through the magnets D E F G of their bulletin-wheels with the main-line wire *b*². The trailer is advanced from the segment *h* to the next segment, *d*, upon the depression of the key A. By the manipulation of the key B the magnet D of the first bulletin-wheel may now be intermittently energized and the wheel advanced step by step until the proper letter or character is exposed to view. In like manner all the wheels are operated when the trailer has been brought upon their respective segments. One manner of effecting this progressive movement of the bulletin-wheel is shown in Fig. 2, where D represents the magnet, D' its armature, and *d* the pawl carried thereby and engaging a driving ratchet-wheel on the hub of the bulletin-wheel. Duplicate ratchet-wheels are shown, the teeth of one being placed opposite the spaces of the other, and locking dogs or spurs for preventing any excessive or irregular movement of the wheels may be arranged as illustrated.

The bulletin may be inclosed within a suitable case, K, provided with a transverse aperture covered by a glass, *k*, through which the matter displayed by the bulletin-wheels is read. The distributing devices may be arranged in a box, L, on the under side of the instrument, or in any other suitable location, and the entire apparatus mounted upon brackets on the wall in a convenient position to be seen. The sizes of wheels and letters will be adapted in each case to the special purpose and location of the bulletin; but letters of an inch in height will no doubt be found sufficient for all ordinary purposes. Each of the bulletin-wheels is shown as marked with the letters of the alphabet, and at the end of the alphabet and in the middle is a dot for spacing. In the distributor thirty contacts have been shown, twenty-six being used for letter-wheels, one for the distributor-unison U, one for the bulletin-wheel unison-magnet H; another, *u*, for the magnet H', by which the unison of the bulletin-wheel is applied, and the remaining one, *s*, may be connected with a call-bell or other signaling device, CB, to indicate when a fresh item of news is displayed.

In the drawings each bulletin-wheel is shown as carried in a pair of uprights, instead of

mounting all the wheels on a common shaft, as might be readily done.

By making the stops on the bulletin-wheel unison-shaft adjustable I provide for any irregularity of size of wheels in manufacture, and for warping, shrinking, or distortion of the wheels while in use.

In the diagram view, Fig. 4, I have shown an organization in which the bulletins are operated on a single circuit. In this arrangement I employ one strength of battery to rotate the trailers and an increased strength of battery to effect the movement of the bulletin-wheels.

Referring to the drawings, MB' and MB² show two batteries having opposite poles turned toward the line and split or divided, as shown. A switch-lever, S, is centrally pivoted and provided with segmental contact-piece *t t* at each end, which serves to throw a portion of the battery MB' to line when the switch is thrown to the left, and a portion of the battery MB² when the switch is thrown to the right. The switch is retained in the central position, when so placed, by an anchor or steadying-spring, T. The circuit in each case is from the portion of the battery MB' or MB², through the polarized relay PR, trailer *c*, the segment upon which it happens to be resting through the coils of a bulletin-wheel or unison-magnet, as the case may be, so wound that it does not respond to such impulses, and thence to the polarized relay and trailer of the next bulletin, and so on to ground. The trailers having been rotated to the proper segment in each instance, the unisons are thrown off or the bulletin-wheels rotated or the signaling device sounded by the manipulation of either the key B or B', which throws the whole strength of its battery upon the line. A current of the same polarity as that last sent for the operation of the distributors must in each case be transmitted. The magnets connected in the segment-circuits respond to its impulses. The polarized relays remain at rest.

It will be noted that in both Figs. 1 and 4 the trailers are shown on the segments near their edges, so that on the next movement the trailer must cross the greater part of the segment upon which it has been resting. This is for the purpose of allowing a full and ample duration of contact between the segment and trailer while the impulse of electricity is passing and is energizing the polarized relay to move the trailer across the segment onto the edge of the adjoining one. There would therefore be but little danger of the polarized relay losing its impulse and failing to move the trailer at the moment it was between the two segments; but in order to further guard against such a possibility and to keep always closed that part of the circuit passing through the instrument the trailer and segments are so arranged that the trailer, in passing from one segment to another, bridges and maintains the continuity of the circuit, Fig. 5.

So far as I am aware, I am the first to provide an organization similar to that indicated in Fig. 4, in this respect, that the impulses which operate the trailer are transmitted through its magnet, through the trailer, the segment upon which it rests, and the branch circuit connected with that segment, and thence through a conductor common to all the branch circuits to the next magnet and trailer, and so on. Obviously such an organization may be used for other purposes than that of operating bulletin-wheels.

I am aware of those fire-alarm systems in which numbers indicating the location of the fire are exposed to view. I am also aware of that class of stock-indicators in which market-quotations may be read from characters upon the peripheries of rotated wheels; but such systems are obviously not analogous to the invention herein described, for the reason that the mechanism employed and the general system of operation are materially different from what is herein disclosed, and are not capable of progressive operation to such an extent as is required to display information in the manner above indicated.

The electrical bulletins may be placed in the lobbies of hotels, business-exchanges, public halls, in offices and in residences, or wherever desired, and constantly display the current important news of the day.

I claim as my invention—

1. The combination, with the distributor having insulated segments and a step-by-step-actuated trailer which during its intervals of rest pauses upon a segment, of the bulletin-wheels, their actuating-magnets included in the circuits of the segments, and a transmitter, a line and source of electric energy, from which intermittent currents may be transmitted through each distributing-segment and its bulletin-wheel magnet and the wheel thereby rotated to expose the desired character.

2. The combination of the bulletin-wheels, their actuating-magnets, the distributor-segments in circuit with which said magnets are connected, the step-by-step-actuated trailer which traverses said segments and during its intervals of rest pauses upon a segment, the source of electric energy, line, and circuit-connections whereby the bulletin-wheels may be individually operated.

3. The combination of the bulletin-wheels, their magnets, the distributor segments with which the magnets are connected, the intermittently-actuated trailer, which during its intervals of rest pauses upon a segment, and the trailer-unison having its magnet connected with one of the distributor-segments and the main line or source of electric energy.

4. The combination of a line, a source of electric energy, an intermittently-operated trailer connected in the line, insulated segments traversed by the trailer, bulletin-wheel-actuating magnets connected with some of said segments, a magnet for throwing on a bulletin-wheel unison connected with one of

said segments, a magnet for throwing off the bulletin-wheel unison connected with another of said segments, and circuit-connections, substantially such as described.

5. The combination of the transmitter, a line, a source of electricity, the distributor having insulated segments and a step-by-step-moving trailer which pauses upon the segments, a gang of bulletin-wheels arranged side by side in parallel vertical planes, the actuating-magnets of the bulletin-wheels each included in the circuit of a segment, whereby each bulletin-wheel may be individually operated when the trailer is upon its segment, and a signaling device included in the circuit of one of the segments, substantially as and for the purpose set forth.

6. The combination, with a gang of bulletin-wheels arranged in parallel vertical planes and each carrying a unison stop, of a gang of opposing stops, and a magnet and its circuit-connections for simultaneously removing the unison from all the bulletin-wheels.

7. The combination of a line, the opposing batteries MB' MB², a switch or lever by means of which current from portions of said batteries of alternating polarity may be thrown upon the line, one or more polarized relays connected in the line and operated by such reverse currents, a trailer or circuit-completer in the line operated by each relay, a circle of segments traversed by each trailer, a branch circuit connected with each segment, electro-magnetic devices in each circuit adapted not to respond to such impulses, and keys or transmitting devices for transmitting currents of increased strength to operate said electro-magnetic devices.

8. The combination of a source of electric energy, a transmitter, a line extending to an intermittently-actuated trailer, a circle of segments traversed by said trailer, a branch line connected with each segment and with a common conductor leading to the next trailer and circle of segments in the line, a unison device for each trailer, and electro-magnetic devices in the branch lines of each circle of segments, corresponding electro-magnets being included in the circuits of corresponding segments, substantially as set forth.

9. In an electrical bulletin, the combination, substantially as set forth, of a source of electric energy, a transmitter, a line extending to an intermittently-actuated trailer, a circle of segments traversed by said trailer, the branch lines connected to the segments and to a common conductor leading to the next trailer and circle of segments in the line, a set of bulletin-wheels arranged in parallel vertical planes located at each circle of segments, bulletin-wheel-actuating magnets included in the branch circuits of the circles of segments, magnets of corresponding wheels being included in corresponding branch circuits at the different circles of segments, and unison-magnets for the bulletin-wheels, also included in branch circuits.

10. The combination of a line, a source of electric energy, a transmitter, polarized relays connected in the line, trailers, one for each relay, also in the line and operated by the relays, a circle of segments traversed by each trailer, a branch circuit connected with each segment and with a common conductor leading to the next relay and trailer, and independent bulletin actuating magnets in the respective branch circuits at the different circles of segments, which magnets do not respond to the relay-actuating currents, but act when currents of increased strength are transmitted, corresponding magnets being included in the circuits of corresponding segments, substantially as and for the purpose set forth.

11. The combination, with a central station where current news or items of general interest are reported, of sub-stations for the visual display or communication of such news-items, where are located electrically-actuated bulletins, each having a series of wheels or rotating bodies upon which are placed the letters of the

alphabet, of such size that they may be read from convenient distance, a source of electric energy, electrical conductors connecting the central and sub stations, a transmitter at the central station for sending currents to the sub-stations to actuate the bulletin-wheels to spell out and expose to view any desired communication, and bulletin-wheel-actuating devices located at each bulletin, by means of which the central-station operator may operate the bulletin-wheel at pleasure to display any desired item of news.

12. The combination, with a gang of bulletin-wheels arranged side by side in parallel vertical planes, of a corresponding gang of individually-adjustable unison-stops.

In testimony whereof I have hereunto subscribed my name.

PATRICK B. DELANY.

Witnesses:

EDWARD C. DAVIDSON,
LLOYD B. WIGHT.