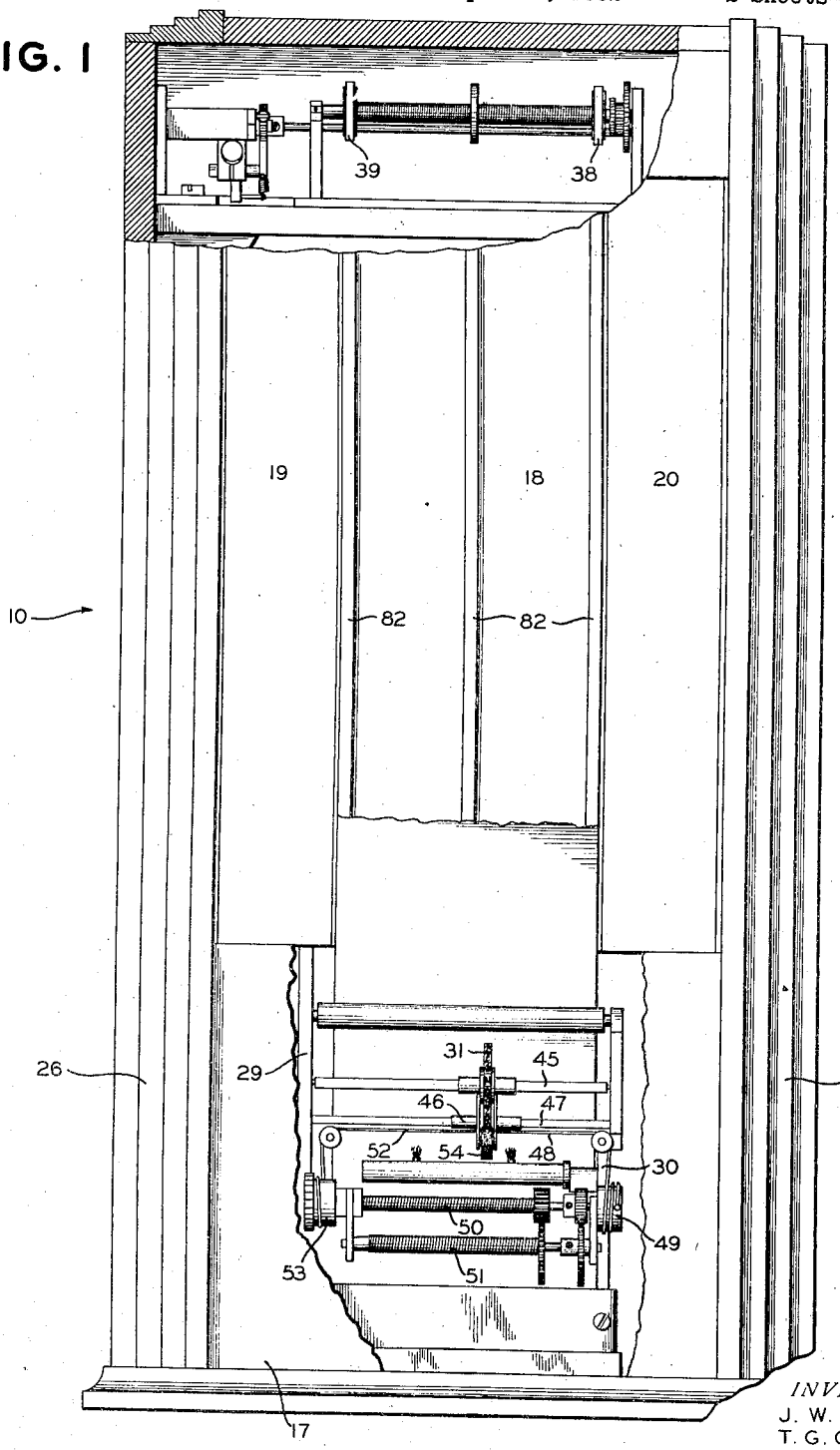
Oct. 31, 1933. J. W. LONG ET AL 1,932,977

DISPLAY APPARATUS FOR BULLETIN PRINTERS

Filed April 7, 1932 2 Sheets-Sheet 1

FIG. 1



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FIG. 2

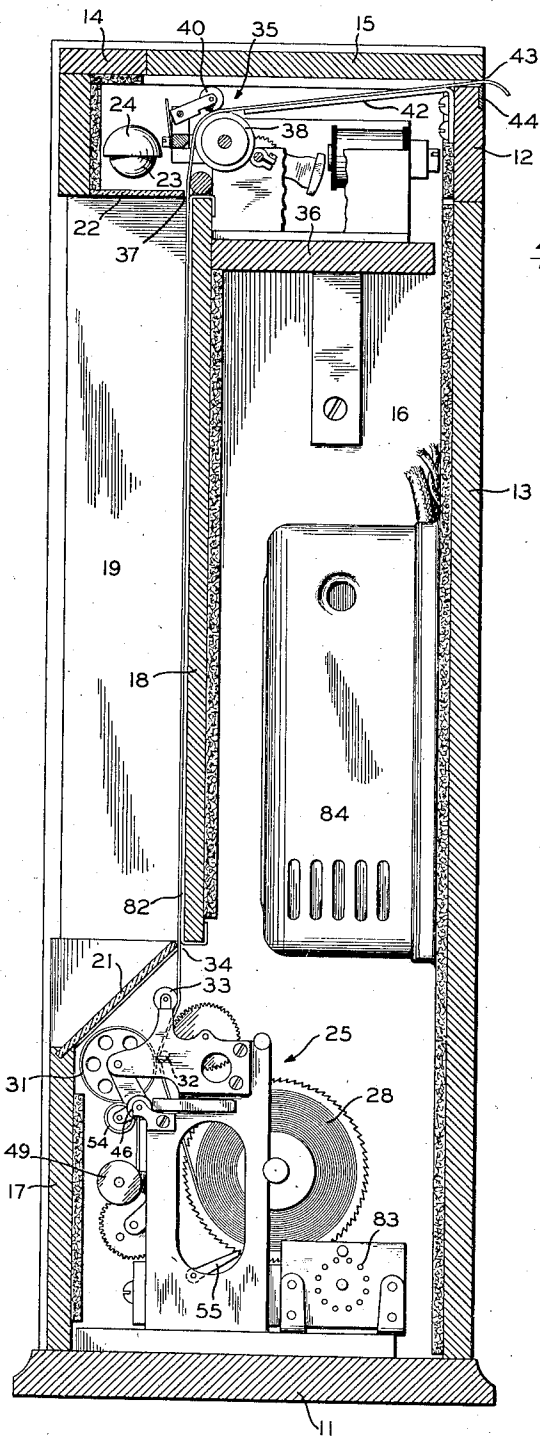


FIG. 3

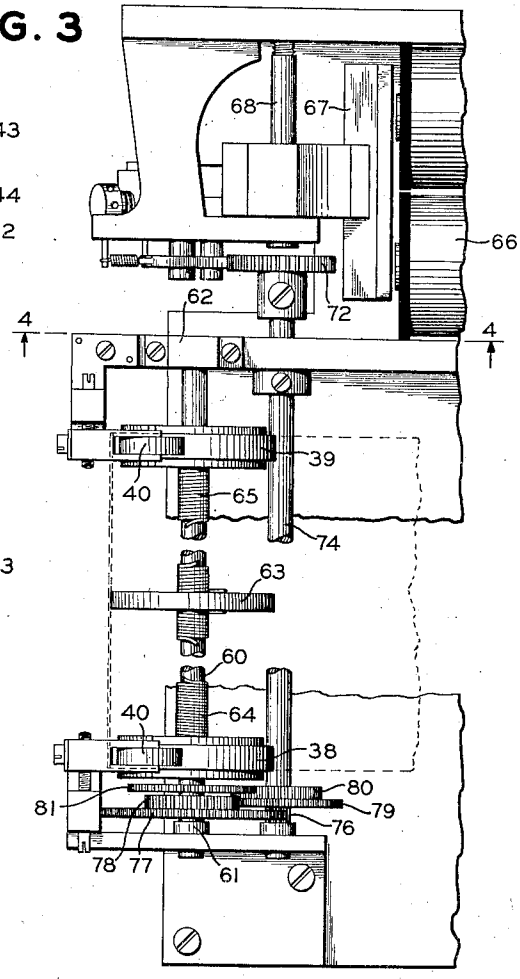
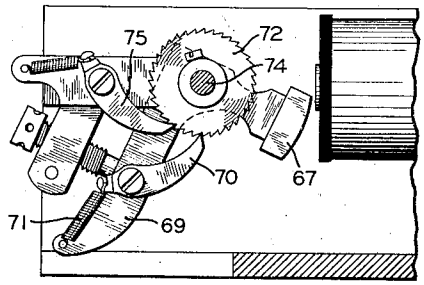


FIG. 4



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UNITED STATES PATENT OFFICE

1,932,977

DISPLAY APPARATUS FOR BULLETIN PRINTERS

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Application April 7, 1932. Serial No. 603,876

16 Claims. (Cl. 178—24)

This invention relates to a telegraphically controlled bulletin printer for use in public places such as show windows, hotel lobbies, etc., or in private offices, for displaying current news items transmitted telegraphically from a central station.

In a prior patent to Campbell et al., No. 950,473, granted March 1, 1910, there is shown a bulletin page printer for displaying news items in enlarged characters upon a continuous web several feet in width. Due to the bulk of this apparatus it is limited to use in relatively few places, such as newspaper offices where the noise of operation and the size of the device are not objectionable. The present invention differs from the Campbell device among other things, in the printing of the news items on a narrow sheet several inches in width in characters of normal size, one of the objects being to produce such a device which is of a small compact structure of pleasing proportions and quiet in operation.

Another object is to provide such a device in which the printing unit is independent of the paper take-up mechanism, so that the printer may be readily removed for repair or replacement.

Another object is to provide a bulletin printer in which all of the operating mechanism is enclosed in a sound insulating cabinet and in which the printed web is extended to the exterior of the cabinet for display purposes, thereby enhancing the legibility of the printed page and substantially eliminating the noise of operation.

Other objects and advantages of the invention will appear as the description proceeds.

In accordance with our invention we employ a type wheel printer, the printing wheel of which moves transversely across the paper to print a line. The paper passes from one reel between the type wheel and associated platen and thence to the exterior of the enclosing cabinet and vertically up the face of a rigid panel, passing back into the cabinet at the upper end thereof at which position it is engaged by the paper take-up mechanism. This latter mechanism serves to maintain the paper taut against the panel and to advance the same, line by line, up the face of the panel. The successive impacts of the paper against the type wheel, at a rapid rate tend to set the paper into vibration and produce objectionable noise. The noise of impact is substantially eliminated by acoustically treating the container in which the printing mechanism is entirely enclosed and the vibration of the paper is reduced by the dampening action of the panel with which the paper is held in contact. The noise of vibration is further reduced by acoustically treating the panel over which the paper passes.

The take-up mechanism is arranged to apply a resilient pull on the paper at all times, the opposite margins of the web being tensioned independently to insure both sides of the paper being maintained taut along the panel, and at the same time sufficient resiliency being provided to enable the paper to be forced against the type wheel during printing.

In order that the invention may be more fully understood, reference will be had to the accompanying drawings in which;

Figure 1 is a front elevation, partly cut away, of a bulletin printer embodying our invention;

Figure 2 is a side elevation thereof;

Figure 3 is a plan view of the paper take-up mechanism; and

Figure 4 is a sectional view on the line 4—4 of Figure 3.

Referring first to Figures 1 and 2, the operating mechanism is shown enclosed in a cabinet 10, having a base 11, a rear wall 12 provided with a hinged door 13, a top 14 having a hinged section 15, side walls 16 and a front wall 17 having a recessed panel 18, sloping sides 19 and 20 and transparent windows 21 and 22. A source of light 23 having a reflector 24 is arranged above window 22 and serves to illuminate the panel 18. The window 21 is provided for the purpose of rendering the printing mechanism 25 contained in the base of the cabinet to be visible. The margins 26 and 27 of the front wall 17 of the cabinet are stepped in modernistic design purely for ornamental purposes.

The paper upon which the printing occurs is held on a suitable reel 28 carried between the side plates 29 and 30 of the printing mechanism 25 and passes from the reel between the type wheel 31 and platen 32, thence over a roller 33 and through a narrow aperture 34 at the base of the panel 18 to the exterior of the cabinet, being drawn upwardly in contact with the face of the panel by a take-up mechanism indicated generally at 35, carried upon a shelf 36 in the upper portion of the cabinet. The paper re-enters the cabinet through an elongated aperture 37 at the upper end of the panel 18 and passes between feed rollers 38 and 39 (Figure 1) adjacent the margins thereof and cooperating pressure rollers 40 (Figures 2 and 3).

The paper passes from the feed rollers 38 and 39 over a guide plate 42 and through an aperture 43 in the rear wall of the cabinet. A knife blade 44 is arranged adjacent the aperture 43 to facilitate the tearing of the web into convenient lengths as it emerges from the cabinet for posting upon suitable clip boards.

The printing mechanism 25 is of the Burry type such as shown in U. S. Patent No. 680,693 granted August 20, 1901, and therefore has not been illustrated in detail. Any other page printing mechanism in which the page or web does

not move from right to left for character spacing may be employed. The general class of printers having a movable type wheel or movable type basket are suitable for this purpose. The type wheel 31 of this printer is mounted upon a triangular shaft 45 and is moved transversely of the web as each character is printed by a yoke carried by the sleeve 46 slidingly mounted on a rod 47 and drawn to the right to effect letter spacing by a cord 48 wound upon a drum 49 against the tension of springs 50 and 51. Carriage return is effected by a second cord 52 extending from the sleeve 46 to the left and winding upon a drum 53 operated by the springs 50 and 51 in response to carriage return signals. An inking roller 54 is carried by the yoke and bears against the periphery of the type wheel.

The type wheel is revolved into printing position by an escapement mechanism not shown controlled by variable numbers of current alternations and at the completion of each line of printing the reel 28 is released to permit a metered amount of paper to be withdrawn therefrom by the take-up mechanism 35. Normally the reel 28 is locked against rotation by a pawl 55, holding the lower end of the paper against movement. The take-up rollers 38 and 39 are spring tensioned so as to exert an upward pull on the paper at all times, thus maintaining the paper taut across the support 18 and permitting it to yield sufficiently so as to be movable against the type wheel during the printing stroke. While this movement of the paper during printing is so slight and rapid as not to be discernible, some provision must be provided to enable the movement to occur and the paper to be taken up immediately after each printing stroke. If the paper is fixedly held at each end it will impose a heavy load on the press magnet and if the press magnet is sufficiently powerful to withdraw a small amount of paper from either the reel 28 or the take-up rollers, slack will be created enabling the paper to continuously lie against the type wheel as it revolves and moves axially so as to smudge the paper. The provision of a spring take-up mechanism enables the paper to be held taut at all times while permitting sufficient yielding of the paper to effect printing.

If the printer is of a form in which the type wheel is struck against the platen, or of the well known type bar design, such yielding of the paper web is not required at the printing stroke. The spring take-up mechanism herein described may however be used without disadvantage as it draws the paper up when required. In such cases, of course, other forms of take-up mechanism may be employed, such as a reel driven from an electric motor through a friction clutch. Also if desired a re-wind reel may be used with any type of take-up mechanism on which the web may be wound up after passing through the take-up mechanism.

The take-up rollers 38 and 39 are loosely mounted on a shaft 60 journaled in bearings 61 and 62 on opposite sides of the web. A disc 63 is rigidly fixed to the shaft 60 and surrounding the shaft between the disc 63 and rollers 38 and 39 are two spiral springs 64 and 65. One end of each spring has a radially turned portion bearing frictionally on the disc 63, the opposite ends of the springs 64, 65 being connected respectively to the take-up rollers 38 and 39. Consequently, as the disc 63 is revolved by the shaft 60 it tends to turn the rollers in a direction to pull the paper upwardly across the panel 18.

The shaft 60 is rotated, step-by-step, by a winding magnet 66 having an armature 67 pivoted on a shaft 68 and having a pawl carrying arm 69 provided with a pawl 70 pressed by a spring 71 against a ratchet wheel 72 so as to rotate the same whenever the armature 67 is attracted. The ratchet wheel 72 is mounted upon a counter shaft 74 and is held during retraction of the pawl 70 by a holding pawl 75. The shaft 74 is operatively connected to the shaft 60 by reduction gearing comprising a pinion 76 formed on the shaft 74, gears 77 and 78 loosely mounted on the shaft 60, gears 79 and 80 loosely mounted on the shaft 74, and a gear 81 fixed on the shaft 60.

The printing in the Burry ticker is effected by a prolonged impulse following the stepping signals and we employ this prolonged impulse to operate the winding magnet 66 although it is to be understood that any convenient source of periodic signals may be employed for this purpose. As each character is printed, the magnet 66 is operated so as to rotate the disc 63 through a small angle, thus gradually winding the springs 64 and 65 to a predetermined tension. Overwinding of the springs is prevented by slippage between the disc 63 and the radially turned ends of the springs when such predetermined tension is obtained. Since each of the rollers 38 and 39 is acted upon separately by its individual spring they pull the opposite margins of the web independently and thereby maintain the same taut at all times eliminating any tendency of the web to wrinkle or feed unevenly.

The surface of the panel 18 may be acoustically treated so as to absorb any noise due to vibration of the paper and at intervals is provided with vertical strips 82 of soft resilient material such as rubber against which the paper is tightly held by the spring take-up mechanism and which serves to dampen any tendency of the paper to vibrate.

It will be noted that we have produced a display apparatus for a bulletin printer in which the paper yields at the time of impact, tension on the paper being maintained substantially constant by the winding mechanism and of just sufficient strength to maintain the paper taut without imposing a severe load on the press magnet. This load is kept relatively low by arranging the printing platen, the face of the panel and the surface of the take-up rollers substantially in alignment so that the pull is substantially vertical without requiring the sharp bending of the paper around guide rollers, such as rollers 33 and 37.

The maintenance of the paper in contact with the elastic surface of the panel eliminates noise of vibration due to the rapid impact of the platen against the paper and the complete enclosure of the printing and take-up mechanism in an acoustically treated cabinet reduces the noise incident to the operation of these mechanisms, to a negligible degree.

The provision of the window 21 enables the operation of the type wheel to be observed at all times and permits the last printed character to be read.

The printer and the take-up mechanism are formed as separate units to facilitate the removal of either part for replacement or repair and for the same purpose the printer is provided with a multicontact socket 83 adapted to receive a multi-contact plug, not shown, for connecting the printer with the relay power box 84. This

power box is mounted on the interior of the door where it is readily accessible upon opening of the door.

Obviously, various modifications and changes in the apparatus shown will occur to those versed in the art and, therefore, we desire to have it understood that we do not limit ourselves to the precise arrangement shown and reserve to ourselves all changes within the scope of the invention as defined in the appended claims.

What we claim is:

1. In a bulletin printing apparatus, a telegraph printer adapted to print transversely of a web, a web take-up mechanism, a panel extending between said printer and take-up mechanism and means for maintaining said web continuously in contact with said panel as it passes from the printer to the take-up mechanism.

2. In a bulletin printing apparatus, a telegraph printer adapted to print transversely of a web, a web take-up mechanism, a panel extending between said printer and take-up mechanism having a resilient surface portion and means for maintaining said web continuously in contact with said resilient surface portion of the panel as it passes from the printer to the take-up mechanism, whereby vibration of the web is damped.

3. In a bulletin printing apparatus, a telegraph printer adapted to print transversely of a web, a panel having a sound absorbing surface extending upwardly from said printer and means for drawing the web upwardly in contact with said panel.

4. In a bulletin printing apparatus, a telegraph printer adapted to print transversely of a web, a panel having vibration damping surface portions, said panel extending upwardly from the printer and resilient take-up means for drawing the web upwardly across said panel and for applying a continuous tension thereto, to maintain the web in contact with said vibration damping portions.

5. In a bulletin printing apparatus, a telegraph printer adapted to print transversely of a web, a panel extending upwardly from said printer and separately driven take-up means acting at opposite margins of the web to draw the same upwardly across the panel and for applying a continuous tension thereto to maintain the web in contact with the panel.

6. In a bulletin printing apparatus, a telegraph printer adapted to print transversely of a web a panel extending upwardly from said printer and separately driven take-up means acting at opposite margins of the web to draw the same upwardly across the panel and for applying a continuous tension thereto to maintain the web in contact with the panel, said take-up means being resilient whereby the web is rendered yieldable during the printing stroke.

7. In a bulletin printing apparatus, a telegraph printer adapted to print transversely of a web, a platen for said printer across which the web passes, a panel extending upwardly from said printer and separately driven take-up means acting at opposite margins of the web to draw the same upwardly across the panel and to apply a continuous tension thereto to maintain the web in contact with the panel, said take-up means, platen, and the surface of the panel being disposed substantially in line.

8. In a bulletin printing apparatus, a telegraph printer adapted to print transversely of a web, a platen for said printer across which the web passes, a panel extending upwardly from said printer, take-up means for drawing the web upwardly across the panel, said take-up means, the platen and the surface of the panel being disposed substantially in line.

9. In a bulletin printing apparatus, a telegraph printer adapted to print transversely of a web, a web take-up mechanism spaced above said printer, a cabinet enclosing the printer and take-up mechanism and means for directing the web upwardly from printing position over an exterior surface of the cabinet to the take-up mechanism substantially in a straight line.

10. In a bulletin printing apparatus, a telegraph printer adapted to print transversely of a web, a web take-up mechanism spaced above said printer, a cabinet enclosing the printer and having a panel extending upwardly between the printer and take-up mechanism and means for directing the web upwardly from printing position over said panel to the take-up mechanism substantially in a straight line.

11. In a bulletin printing apparatus, a telegraph printer adapted to print transversely of a web, a web take-up mechanism spaced above a printer, a panel having a web vibration damping surface extending upwardly between the printer and take-up mechanism and means for directing the web upwardly from the printer over said panel to the take-up mechanism substantially in a straight line.

12. In a bulletin printing apparatus, a telegraph printer adapted to print transversely of a web, a web take-up mechanism spaced above said printer, a cabinet enclosing the printer and take-up mechanism, means for drawing the paper upwardly over the front wall of the cabinet and means for discharging the paper through a rear wall of the cabinet.

13. In a bulletin display apparatus, a web having bulletins printed thereon, a cabinet enclosing a supply roll and a take-up roll for the web, a panel in said cabinet, means for passing the web upwardly across said panel and concealed illuminating means disposed within the cabinet forwardly of the panel for illuminating the web.

14. In a bulletin printing apparatus, a telegraph printer adapted to print transversely of a web, a cabinet enclosing said printer, means for drawing the web from the printer and directing it vertically across a face of the cabinet and a transparent window in the cabinet arranged to permit the enclosed portion of the web to be observed substantially from the point adjacent the printing position of the printer to the point of exit of the web.

15. In a bulletin printing apparatus, a telegraph printer adapted to print transversely of a web, a cabinet enclosing said printer, means for drawing the web from the printer and directing it across a face of the cabinet, said cabinet having a recess therein adjacent to the printer so that the web may be observed at the point where printing occurs.

16. In a bulletin printing apparatus, a telegraph printer adapted to print transversely of a web, a cabinet enclosing said printer, means for drawing the web from the printer and through a slit in the cabinet and directing it across a face of the cabinet, said cabinet having a window disposed adjacent to the printer so that the web may be observed at the point where printing occurs.

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DISCLAIMER

1,932,977.—*James W. Long* and *Thomas G. Collings*, Plainfield, N. J. DISPLAY APPARATUS FOR BULLETIN PRINTERS. Patent dated October 31, 1933. Disclaimer filed March 5, 1937, by the assignee, *The Western Union Telegraph Company*.

Hereby enters this disclaimer to the subject matter constituting claims 1, 5, 6, 7, and 8 of the patent.

[*Official Gazette April 6, 1937.*]