

Jan. 1, 1935.

J. H. DAVIDSON ET AL

1,986,326

PROGRAM INDICATOR

Filed Nov. 1, 1932

2 Sheets-Sheet 1

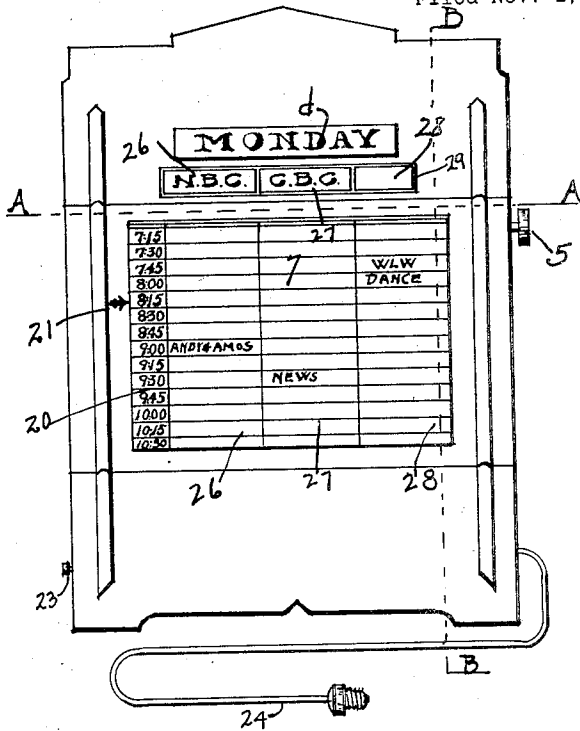


FIG. 1

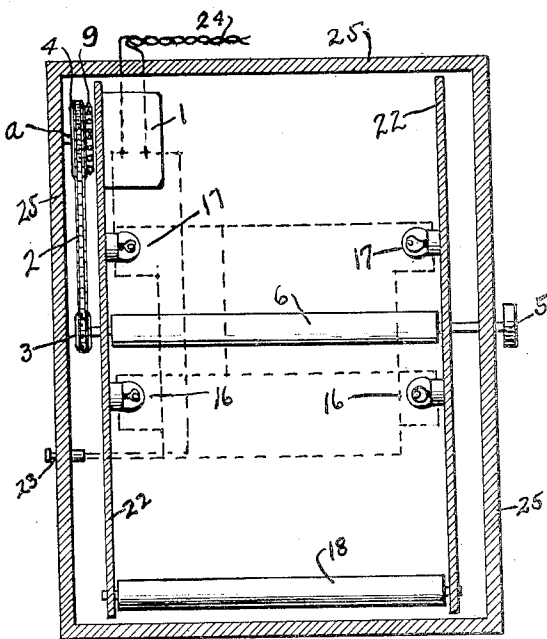


FIG. 2

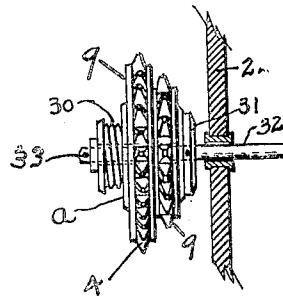


FIG. 3

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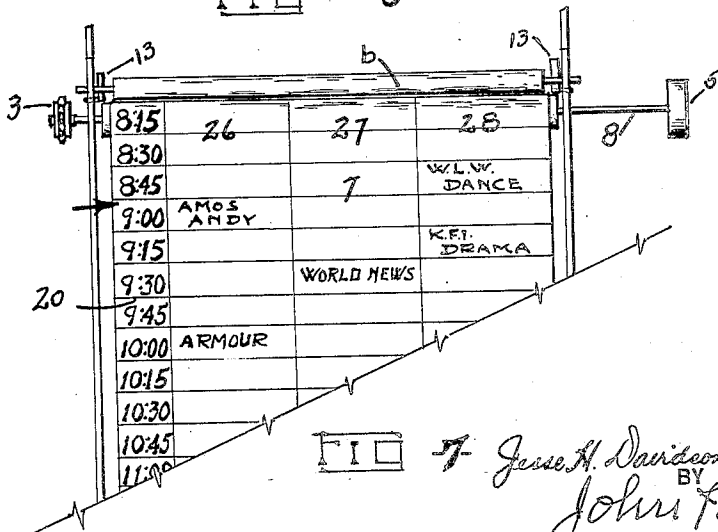
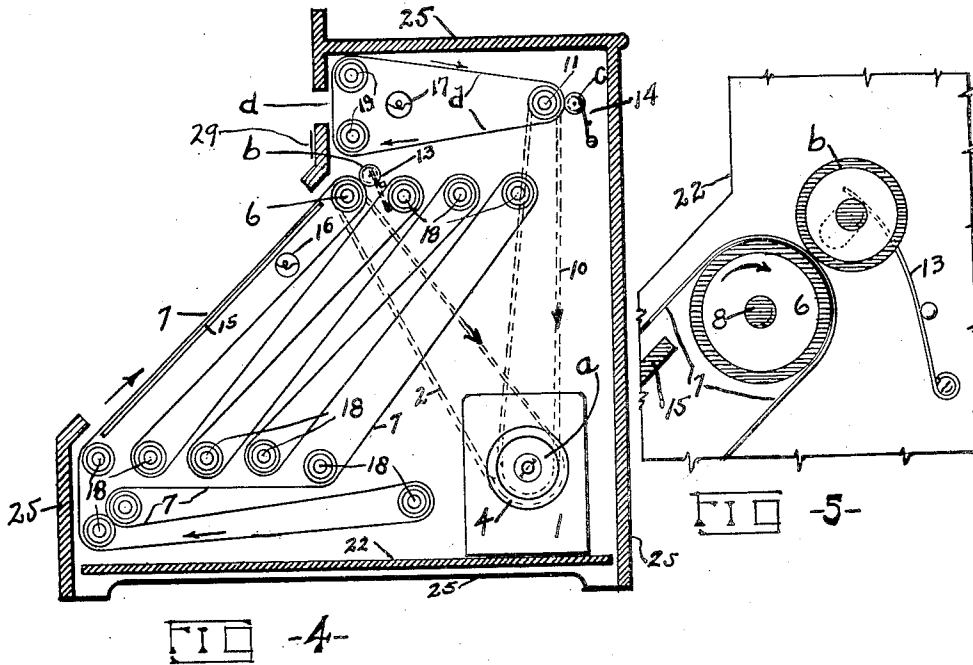
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## UNITED STATES PATENT OFFICE

1,986,326

## PROGRAM INDICATOR

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Application November 1, 1932, Serial No. 640,672

9 Claims. (Cl. 40—32)

Our invention relates to improvements in program indicators, for schools or other audiences and more especially for radio audiences, as illustrated herein, in which a moving, endless, belt-sheet carrying the program is actuated by a clock motor to disclose and indicate the various desired programs at all times of day or night; and the principal objects of our invention are to afford facilities for showing on the moving, endless program-sheet the desired events at the designated time and at the designated broadcasting station for the whole week's time; second, to designate on a clock driven endless belt sheet, lectures, theatricals, and important events as desired by the interested parties; third, to designate programs in schools and other gatherings of persons, as to time and place and other predetermined events; fourth, to indicate the time of day in a scale of periods of 15 minutes for radios, and for such other scales as desired in the various programs in the lines of business or amusements.

We attain these objects by means of the mechanisms and appliances illustrated in the accompanying drawings, in which—

Figure 1 is a front elevation of the program indicator showing columns N. B. C. 26, and C. B. C. 27, the broadcasting companies, and a column 28 for such other broadcasting firms as desired; Fig. 2 is a sectional plan view of a part of Fig. 1 after removing the part above line A—A; Fig. 3 shows a detail of the friction clutch *a*, and pulleys, shown in Figs. 2 and 4; Fig. 4 is a right side sectional elevation of part of the frame 22 and working contents, without the casing or housing, as shown on the line B—B, Fig. 1; Fig. 5 is a diagrammatic detail of part of Fig. 4, and showing the connections of the tension roller *b* which are similar to connections on tension roller *c*; Fig. 6 is a front elevation of the day-of-the-week *d*, endless belt, mounted on its three rollers, with housing removed, and also shown in Figs. 1 and 4; Fig. 7 is a front elevation of part of the program indicator endless belt 7, with housing removed; endless belt 7 is also shown in Figs. 1, 4, 5.

Similar numerals refer to similar parts throughout the several views.

The inside frame 22, carrying the rollers 6 and 18, the program indicator endless belt 7 with its marginal time-table, the rollers 19 and 11 with their endless belt *d*, and the actuating clock motor mechanism form the principal part of our invention. The clock motor 1 is there shown actuated by electric current and is provided to run all the time as a clock might run and a switch 23, Fig. 2 shows how the lights may be switched on and off

as desired. The motor 1 is connected with the current supply by means of supply means 24, Fig. 1, and drives shaft 32 which drives friction clutch member *a*, carrying sprocket pulleys 4 and 9 which drive chains 2 and 10 respectively. The speed of the invention is regulated within the clock motor which is only a part of our invention as used in combination, only.

Pulleys 4 and 9 are mounted loosely on shaft 32 except as made rigid by means of the coil tension spring 30 secured against them by removable tension pin 33. Chain 2 drives pulley 3 which actuates program indicator endless belt 7, as it is interwoven over the twelve rollers shown in Fig. 4, which are adapted to keep the endless belt in order and from chafing the writing upon its face. But the rollers 18, may be dispensed with and the said belt be allowed to recline on the floor of frame 22.

Chain 10 drives pulley 12 and actuates indicator endless belt *d*, which indicates the days of the week. The two idle rollers 19 support the face of belt *d*. The tension rollers *b* and *c*, Fig. 4, are forced by the springs 13, against their respective belts 7 and *d*, to add friction on the driving rollers 6 and 11, and their belts respectively.

The adjusting hand-wheel 5 on shaft 8 is adapted to regulate the position of belt 7 by loosening chain 2, by its slipping pulley 4 in friction clutch *a* by the slight tension of spring 30. The glass plate 15 in Fig. 4 is to protect the endless belt 7 from behind and especially when writing on it. This plate is transparent and the belt is partially so to enable one to read the writing on it when illuminated by the two lights 16, 16. The lights 17, 17, are to illuminate the belt *d*, which carries the days of the week.

The indicator belt 7, may be lined with a plurality of columns in erasable or permanent pigment, and usually the left marginal column 20, is indelibly printed in figures giving the time of day and night for one hundred sixty eight hours in spaces of 15 minutes each, for radios and the seven days of the week in order, and the whole printed in transverse horizontal lines, equally distant in four for each hour, on which a person may write with a pencil pressing the belt 7 against the glass plate 15, to write or to erase any writing. The number of spaces to pass each hour is optional as desired, as four or more spaces.

The time of day and the time for program action is indicated by the pointing arrow head 21, Fig. 1, which points to the line passing it.

The two endless belts 7 and *d* and the clock motor 1 are intended to run all the time like a clock, but the lights may be switched off as desired. The movement of the belts is so slow that but a very little electric energy is required to run them, and it may be done by a small dry battery with little notice, as a clock. But this clock motor may be actuated by a compressed spring, or by a weight or otherwise, as well as by an electric current.

In Fig. 1, the casing or housing 25, carries a card holder or container 29 for holding of cards.

In Fig. 3 the hub 31 is shown rigidly pinned to shaft 32 so as to turn the pulleys 4 and 9 by frictional contact when pressed by spring 30, forcing the discs of the clutch together. While we are herein representing the endless belt 7, as running upwardly, we claim the invention of running it downwardly or horizontally. While we show the indicator as mounted in a separate housing, yet we claim the use of the endless belt 7, mounted within the housing of a radio receiving member or other program member. And while we show the endless belt *d*, as indicating the days of the week only, yet we claim the invention of showing the days of the week on the endless belt 7, in its various forms, and dispensing with endless belt *d*.

Having thus described our invention we claim as follows:

1. In a program indicator of the class described, the combination of a supporting frame and a housing, a broad endless belt therein supported upon a multiplicity of horizontally-extending parallel rollers mounted operatively in said frame, a time-table on the margin of said belt indicating the time of day as it passes an indicating arrow or pointer, a program written on said belt, an actuating clock-motor member adapted to drive said rollers and belt in regular time speed, a supporting table of glass extending across an opening in the front of said housing and adapted to have said belt pass over the front of the table and exposed to said opening and exposing to view the time-table and program written on said belt, and illuminating lights in back of said table.

2. In a moving program indicator of the class described, an upright supporting frame, a multiplicity of horizontally-extending parallel rollers mounted operatively in the upper and lower parts of said frame, a broad thin translucent endless belt bearing the written program on transverse lines passing a fixed marker and interwoven operatively among all of said rollers, a written time-table on the margin of said belt indicating the time a part of it passes a marking member, a casing enclosing said frame and having a window opening in its front side parallel with said rollers, a glass table within said opening and space for said belt to pass in front of said table and within said casing, a clock motor means operatively adapted to drive said rollers and said belt slowly as required.

3. A program indicator of the class described, comprising an upright frame, a plurality of rollers mounted operatively in said frame parallel to the face of the indicator, a broad endless belt mounted upon all of said rollers and operated by the top roller, a clock motor adapted to drive said top roller at a slow regular speed for exposing all of the front of said belt past a fixed finger near its margin once a week, an inclined table of transparent material at the front of said indicator casing over which said belt is mechan-

cally forced to rise to said top roller, a casing for said indicator and having an aperture in its front exposing the front of the belt passing over said transparent material, and a written program on the outer face of said belt on horizontal transverse lines designating on the margin of the belt the time of day and designating the program prearranged for the time of day.

4. The combination in a program indicator having a frame, a housing, and a transparent glass table obstructing an opening in the front of said housing, of a broad, thin, endless belt, longitudinally-extending lines written thereon one or more inches apart, transversely-extending lines written thereon nearly one fourth inch apart, the times of day for the "day of the week", written on one margin of said belt in 15 minute periods using four transverse lines to the hour, supporting rollers among which said belt is operatively interwoven, one of said rollers above said table driving said belt, a pressure tension roller adapted to press said belt against said driving roller, spring means forcing said pressure roller against said driving roller, a clock-motor means adapted to drive said driving roller and belt, an index marker adapted to point to the transverse line passing at the particular time, and written program items on said transverse lines designating the events to occur at the designated times.

5. The combination in an endless-belt program indicator having an upright frame, a housing over said frame, with an opening in its front, a transparent inclined table member across and within said opening, of a translucent thin endless belt, longitudinally extending lines on said belt one or more inches apart, transverse lines on said belt about one eighth inch apart and adapted to be written on, the time of day in periods of fifteen minutes each written on one margin of said belt on said transverse lines, a multiplicity of parallel rollers spaced and mounted in said frame and adapted to support said belt interwoven among them in an operative manner, a driving roller over said table carrying said belt, a pressure roller forcing said belt against said driving roller by adjustable spring pressure, clock motor means adapted to drive said belt past a designated point at the rate of one of said transverse lines during each fifteen minutes, a designating finger fixed at said designating point, written items of program on said transverse lines to be enacted at the times on said transverse lines as designated on said belt, hand means for adjusting said belt to the time of day, lights in said frame mounted to shine through said transparent table member to illuminate said writing, switch means for turning said lights on and off and a second and auxiliary belt designating the days of the week and months of the year as a calendar and mounted in said frame and actuated by the same clock motor means.

6. In a program indicating appliance, an upright frame, a cabinet housing enclosing said frame and having an opening in its front, a thin translucent endless belt adapted to display the program, longitudinal and transverse lines on the outer face of said belt, time designating numerals along one edge of said belt, writing designating the acts of the program being written on the transverse lines opposite said numerals, means actuating said belt, said means comprising an actuating roller in said housing above said opening, a plurality of supporting rollers for said belt, a clock motor and a roller to compress said belt against said actuating roller; operating 75

means communicating said motor and said actuating roller; a glass supporting plate against said belt where exposing said program to view in said opening, and means to illuminate said view portion, as exposed.

7. In a program-indicating appliance of the class described, a thin translucent endless belt upon which the program is written for display, lines extending transversely to the line of travel on said belt, and upon which said program is written, figures at the ends of said lines indicating the times of day in spaces of fifteen minutes or some multiple thereof between the successive lines indicating the times of day the program events will occur, a supporting frame and housing for said appliance having an opening in front, an actuating roller and a multiplicity of supporting rollers operatively mounted in said frame among which said belt is supported and interwoven, a spring actuated pressure roller adapted to add friction between said actuating roller and said belt by being forced against said belt and pressing it against said actuating roller, a clock motor means adapted to drive said actuating roller and to cause said belt to travel at a speed of about one inch per hour, a pointing member fixed on said frame or housing pointing to the passing line designated by the time of day and the acts to be enacted at that time, a glass pane placed against the unwritten side of said belt across said opening, and illuminating means placed back of said glass pane.

8. A program indicating appliance of the class described, comprising in combination, an upright frame, and housing having an opening in its front, a glass plate across said opening and within the housing, an actuating roller above said plate and a guide roller below said plate, a translucent endless belt mounted operatively over said rollers, and in front of said plate and said opening, a clock-motor adapted to drive said actuating roller at a regular slow speed, a tension roller adapted to press said belt against said actuating roller, sprocket drive means connecting operatively said actuating roller and said motor, friction release clutch means in said sprocket drive means, an ad-

justing hand-wheel on the shaft of the actuating roller and outside of said casing and adapted to adjust said belt to the time of day, a column of time numerals printed on one edge of said belt indicating the time of day in spaces of fifteen minutes of time for a calendar week and giving the names of the days in order as they pass, transverse lines on said belt about one eighth of an inch apart or more as desired and adapted to be written on to designate the program of the hour or part of the hour, a designating fixed pointer under which said transverse lines and said time numerals pass regularly as said belt makes its weekly revolution, a multiplicity of horizontally extending parallel rollers within said housing and having said endless belt loosely mounted interwovenly thereon, longitudinally extending lines on said belt forming columns of specially designated subjects as N. B. C.—C. B. C.—School—, lights within said housing and switch means for controlling them, when needed or not needed.

9. A program indicator appliance of the class described, comprising in combination; a frame and housing having an opening in front, a plate across said opening and within said housing, an actuating roller mounted operatively above the upper edge of said plate, and a guide roller below the opposite edge of said plate, a broad thin endless belt mounted operatively upon said rollers, means producing actuating frictional contact between said belt and the actuating roller, two or more longitudinally extending lines spacing in columns on the outer face of said belt, transverse lines on the face of said belt adapted for the writing thereon of the program in periods of time required for the specific performance, a time table on said belt designating the time of day and night in periods of fifteen minutes on said transverse lines, and days of the week, a marker rigidly secured to some fixture and pointing to the part of said table designating the time, and means for disposing workably of the slack part of said belt on the interior of said housing and frame.

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