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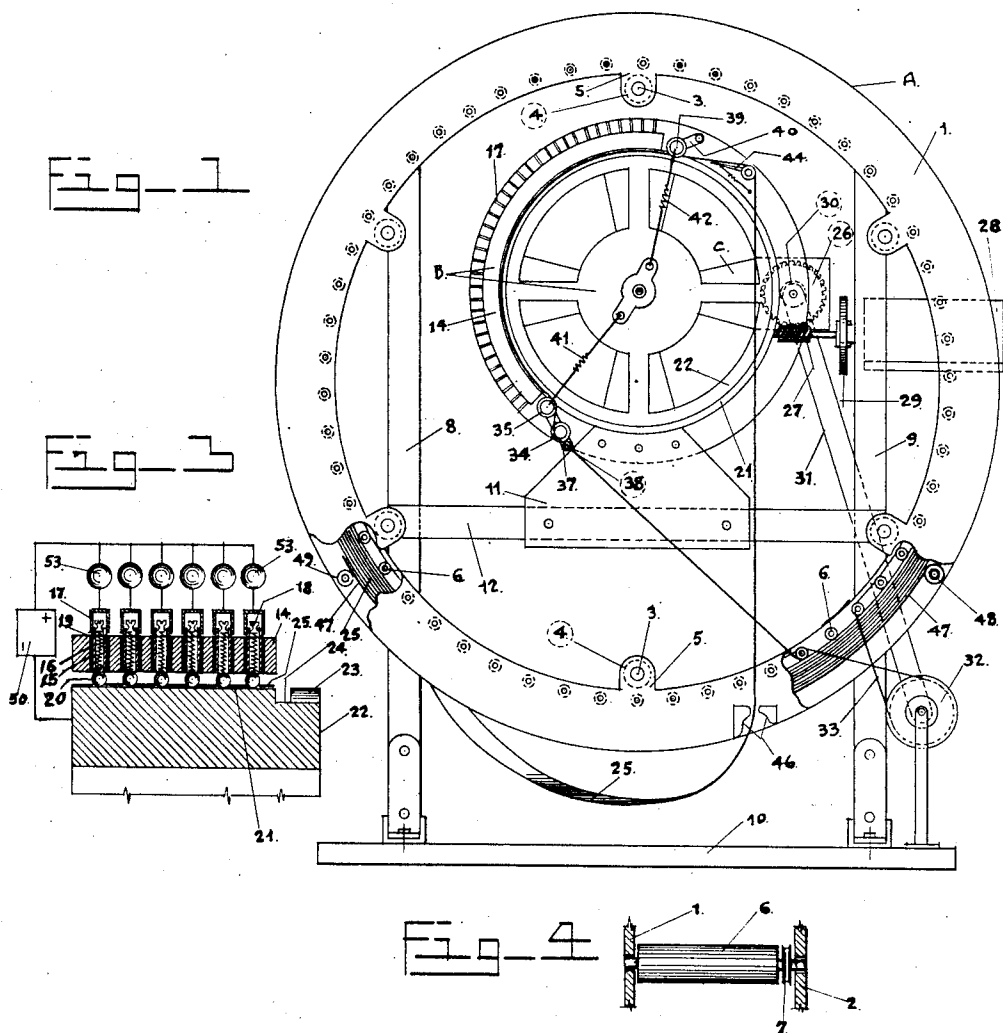
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PATTERN SHEET CONTROLLED SWITCH FOR ILLUMINABLE SIGNS

Filed June 28, 1930

2 Sheets-Sheet 1



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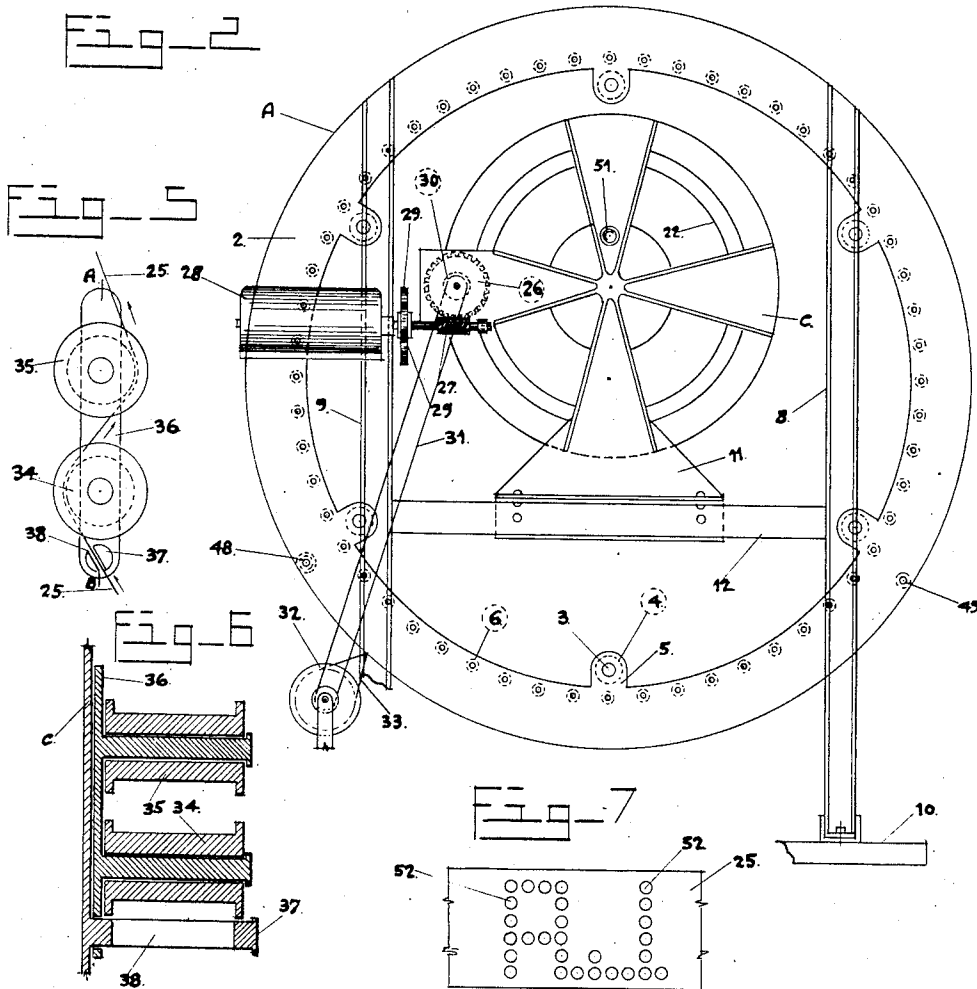
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REISSUED

UNITED STATES PATENT OFFICE

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PATTERN-SHEET CONTROLLED SWITCH FOR ILLUMINABLE SIGNS

Application filed June 28, 1930, Serial No. 464,639, and in Cuba September 3, 1929.

This invention relates to a pattern-sheet controlled switch designed primarily for use in connection with luminous continuous signs, but it is to be understood that a circuit controller in accordance with this invention may be employed for any purposes for which it is found applicable, and the invention has for its object to provide, in a manner as hereinafter set forth for intermittently controlling an illuminable display, from a signboard or other object.

A further object of the invention is to provide, in a manner as hereinafter set forth a controlling device for the purpose referred to capable of performing its function when the signboard or other object upon which the display is to be had is located at a point remote from the switch.

Further objects of the invention are to provide, in manner as hereinafter set forth a circuit controller for the purpose referred to which is comparatively simple in its construction and arrangement, strong, durable, compact, thoroughly efficient in its use, readily assembled and comparatively inexpensive to manufacture.

In the drawings:—

Fig. 1 is a front elevation of the switch.

Fig. 2 is a fragmentary view in rear elevation.

Fig. 3 is a detailed section illustrating a set of spring controlled circuit closing elements and further showing the circuit controlling element of the pattern sheet type in the form of a perforated ribbon and which is common to the several lighting circuits.

Fig. 4 shows one of the rollers of the spool, serving to move the circuit controlling element.

Fig. 5 is a detail of the inside rollers serving to guide the circuit controlling element when in motion.

Fig. 6 shows a section taken along line A—B Fig. 5.

Fig. 7 shows the circuit controlling element in the form of a ribbon or film in which, as an example, the pattern in the form of letters A. J. provided by perforations.

By referring to the drawings it may be seen that A is a spool or drum formed by two cir-

cular annular rings 1 and 2 joined and maintained in fixed spaced relation by bolts 3 and spacers 4 arranged between and secured to lugs 5 extending inwardly from the inner edge of rings 1 and 2. Between said rings and near the inner edges thereof are rollers 6, carried and rotated by shafts 6' which project from the ends of the rollers. For the purpose of making all said rollers 6 drivers, each shaft 6' is provided with a pulley 7 rigidly mounted near one of the ends of the roller. The normal position of the spool A is vertical and it is sustained by means of supports 8 and 9, secured to base 10.

The circuit controlling or switching mechanism B is lodged interiorly of spool A, to which it is secured by means of a framing C, suitably held by a gusset 11 fixed to a horizontal member 12, having its ends attached to a pair of lugs 5 of ring 1. The mechanism B includes a motor 28 supported upon a member 13 joined at one end to ring 2.

Framing C is secured to a holder 14 of dielectric material, in which are formed openings 15 wherein are lodged metallic tubes 16 provided with inside and outside threads, at their upper ends, the former serving to screw on metallic covers 17 and the latter to secure bolts 18 regulating the pressure of spiral springs 19 lodged interiorly of said metallic tubes 16. The said springs having one of their ends resting on the lower part of screws 18 and the other resting on metallic balls 20. The said balls are adapted to contact the outer face of rim 21 of a metallic wheel 22.

The wheel 22 is rotatably mounted in the framing C and electrically insulated therefrom by means of a fiber or other suitable means.

The rim 21 of the wheel 22 (Fig. 3) is provided with teeth 23 at one of its sides, said teeth being separated from the rest of the rim by means of an annular groove 24 serving to prevent the circuit controlling element of the pattern-sheet type and in the form of a ribbon or film 25 to be struck by the tooth or sprocket wheel 26, which imparts movement to wheel 22 by means of engaging the teeth 23 of the latter. The sprocket wheel 26 is rotatably mounted in framing C and is driven

from a worm 27 operated by a reduction gear driven from motor 28. The reduction gearing consists of the sprockets 29 and 29'. The wheel 28 is operated at the desired speed, the reduction gearing providing therefor.

In order to synchronize the movement of the different parts that intervene in the movement of the film or ribbon 25, a pulley 30 is mounted by wheel 26 for the purpose of transmitting motion by means of a chain or belt 31 to a pulley 32 serving to move, simultaneously the rollers 6 by means of belt 33 travelling on the pulleys 7.

To maintain the ribbon or film 25 in a correct position during its travel we provide: at the lower part of rim 21 a pair of rollers 34 and 35, rotatably mounted in a support 36 capable of oscillating in framing C upon a shaft 37, which is provided with a slot 38, serving to allow passage therethrough of the ribbon or film 25 (Figs. 5 and 6), as to be explained hereinafter, and at the upper part 39 of rim 21, rotatably mounted supports 40 are provided capable of oscillating on framing C. The said supports 36 and 40 being held in working position by means of opposed, oppositely acting springs 41 and 42 which are suitably secured thereto and also to fixed holders on the wheel 22. In addition to the aforesaid rollers an oscillating plate 44 is fixed to a shaft 45, firmly secured to framing C and serving to uphold the ribbon or film 25 upon issuing from holder 14. To prevent possible twisting of the ribbon or film 25 after passing over plate 44, a guide 46 is provided on the interior periphery of ring 1 and which is in the shape of a fork.

As the ribbon or film 25 tends to sag at the lower end of spool A, such sag ultimately interfering with the proper working of the device, we provide a fixed brake 47, secured at one of its ends to shaft 48 and having its other end sustained by a pin 49 and which allows regulation of its pressure according to the length of the ribbon wound on the spool.

It is understood that as the holder 14 is of dielectric material and each of the spiral springs 19, tubes 16 and covers 17 constitute a pole, whereas since wheel 22 is metallic and is electrically connected to battery 50 by means of brush 51 provided in framing C, it constitutes the other pole that is to say, when a ball 20 passes through an opening in ribbon 25 to contact with rim 21 whereby the corresponding lamp is illuminated.

Operation

(A). Take one end of ribbon or film 25 with the advertisement perforated thereon and pass same from the outside to the inside between two rollers 6 of those occupying the second quadrant.

(B). Pull film gently and pass through slot 38 provided in shaft 37.

(C). Pass same between rollers 34 and 35 (taking care that 35 mounts on the ribbon).

(D). Introduce its end in the space limited by holder 14 and rim 21, and rotating wheel 22, slowly advance ribbon until its end issues through the outer end of holder 14.

(E). Pass ribbon over plate 44 and then lodge same between forked shaped guide 46 secured to ring 1.

(F). Roll balance of ribbon on spool A until end is reached, at which time both ends thereof are permanently attached to each other, taking care to allow sufficient sag.

(G). Start motor 28 which, through worm 27 and gears 29', 29 and 26 imparts motion to wheel 22 which will impart motion to ribbon 25, forcing same to move. Once the ribbon is in motion, every time a perforation 52 coincides with a ball 20, the corresponding circuit will be closed, lighting lamp 53 of the board or signboard, the plurality of lighted lamps producing the word or words constituting the matter to be displayed, but the same time giving the sensation of motion. The foregoing operation is repeated as long as the device is in motion as the perforated ribbon is endless.

What we claim is:—

1. In a pattern-sheet controlled switch for normally open circuits for use in illuminable signs, a rotatable wheel of conducting material interposed in and common to such circuits, a holder of dielectric material opposing a portion of and spaced from the rim of said wheel and provided with a set of openings, a set of spring controlled contacts mounted in said openings and projecting inwardly from said holder, each of said contacts interposed in one of said circuits and providing a circuit closer therefor, a stationary spool surrounding said wheel, a controlling element of the pattern sheet type common to said circuits and in the form of a shiftable ribbon provided with spaced apertures, said ribbon supported by the spool and travelling between said rim portion and said contacts for normally maintaining the latter clear of said rim portion, driven rollers arranged in said spool for shifting said ribbon therefrom, means to provide for the travelling of the ribbon over said rim portion, whereby said apertures will selectively permit for the passage of said contacts to engage said rim portion to close the lighting circuits, means engaging with said wheel rim for rotating the wheel, and means operated from the means for rotating said wheel for driving said roller to shift the means for operating said rotating means for the wheel.

2. In a pattern-sheet controlled switch for normally open circuits for use in illuminable signs, a rotatable wheel of conducting material interposed in and common to such circuits, a holder of dielectric material opposing a portion of and spaced from the rim of said

wheel and provided with a set of openings, a set of spring controlled contacts mounted in said openings and projecting inwardly from said holder, each of said contacts interposed in one of said circuits and providing a circuit closer therefor, a stationary spool surrounding said wheel, a controlling element of the pattern sheet type common to said circuits and in the form of a shiftable ribbon provided with spaced apertures, said ribbon supported by the spool and travelling between said rim portion and said contacts for normally maintaining the latter clear of said rim portion, driven rollers arranged in said spool for shifting said ribbon therefrom, means to provide for the travelling of the ribbon over said rim portion, whereby said apertures will selectively permit for the passage of said contacts to engage said rim portion to close the lighting circuits, means for rotating said wheel, and means operated from the means for rotating said wheel for driving said rollers to shift said ribbon.

3. In a pattern-sheet controlled switch for normally open circuits for use in illuminable signs, a rotatable wheel of conducting material interposed in and common to such circuits, a holder of dielectric material opposing a portion of and spaced from the rim of said wheel and provided with a set of openings, a set of spring controlled contacts mounted in said openings and projecting inwardly from said holder, each of said contacts interposed in one of said circuits and providing a circuit closer therefor, a stationary spool surrounding said wheel, a controlling element of the pattern sheet type common to said circuits and in the form of a shiftable ribbon provided with spaced apertures, said ribbon supported by the spool and travelling between said rim portion and said contacts for normally maintaining the latter clear of said rim portion, driven rollers arranged in said spool for shifting said ribbon therefrom, means to provide for the travelling of the ribbon over said rim portion, whereby said apertures will selectively permit for the passage of said contacts to engage said rim portion to close the lighting circuits, means engaging with said wheel rim for rotating the wheel, means operated from the means for rotating said wheel for driving said roller to shift the means for operating said rotating means for the wheel, the said means to provide for the travel of the ribbon over said rim portion being spring controlled.

4. In a pattern-sheet controlled switch for normally open circuits for use in illuminable signs, a rotatable wheel of conducting material interposed and common to such circuits, a holder of dielectric material opposing a portion of and spaced from the rim of said wheel and provided with a set of openings, a set of spring controlled contacts mounted in said

openings and projecting inwardly from said holder, each of said contacts interposed in one of said circuits and providing a circuit closer therefor, a stationary spool surrounding said wheel, a controlling element of the pattern sheet type common to said circuits and in the form of a shiftable ribbon provided with spaced apertures, said ribbon supported by the spool and travelling between said rim portion and said contacts for normally maintaining the latter clear of said rim portion, driven rollers arranged in said spool for shifting said ribbon therefrom, means to provide for the travelling of the ribbon over said rim portion, whereby said apertures will selectively permit for the passage of said contacts to engage said rim portion to close the lighting circuits, means for rotating said wheel, and means operated from the means for rotating said wheel for driving said rollers to shift said ribbon, the said means to provide for the travel of the ribbon over said rim portion being spring controlled.

5. In a pattern-sheet controlled switch for normally open circuits for use in illuminable signs, a rotatable wheel of conducting material interposed in and common to such circuits, a holder of dielectric material opposing a portion of and spaced from the rim of said wheel and provided with a set of openings, a set of spring controlled contacts mounted in said openings and projecting inwardly from said holder, each of said contacts interposed in one of said circuits and providing a circuit closer therefor, a stationary spool surrounding said wheel, a controlling element of the pattern sheet type common to said circuits and in the form of a shiftable ribbon provided with spaced apertures, said ribbon supported by the spool and travelling between said rim portion and said contacts for normally maintaining the latter clear of said rim portion, driven rollers arranged in said spool for shifting said ribbon therefrom, means to provide for the travelling of the ribbon over said rim portion, whereby said apertures will selectively permit for the passage of said contacts to engage said rim portion to close the lighting circuits, means for rotating said wheel, means operated from the means for rotating said wheel for driving said rollers to shift said ribbon, the said means to provide for the travel of the ribbon over said rim portion being spring controlled and a ribbon guide supported from said spool.

In witness whereof we sign the present specification and claims at Habana, Cuba, the 13th day of May, 1930.

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