June 11, 1929. L. GASTON 1,716,690

LIGHTING OF VEHICLES

Filed Nov. 8, 1927

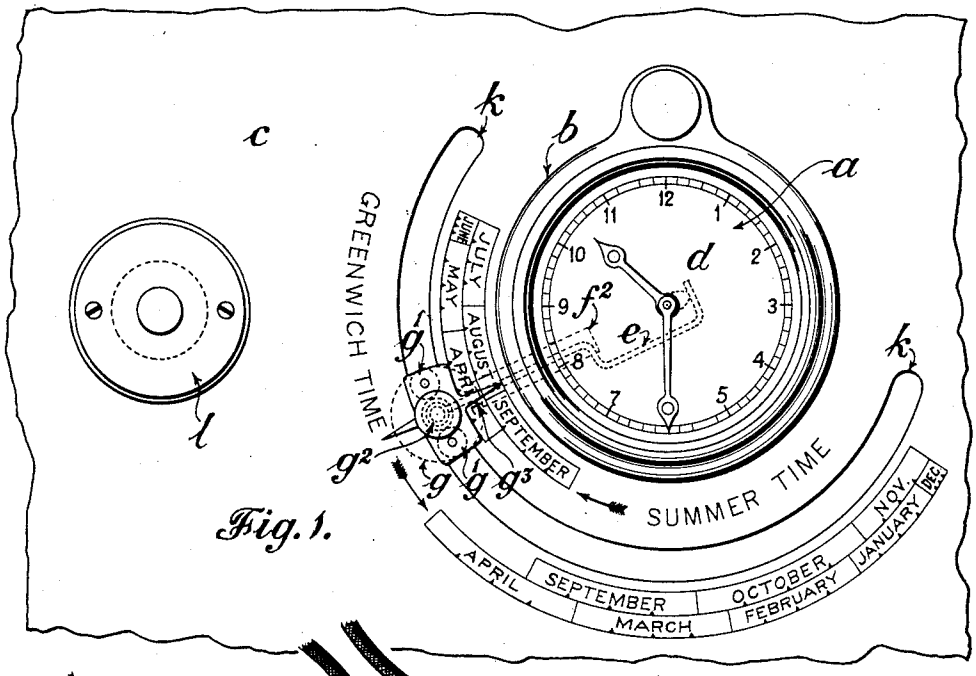


Fig. 1.

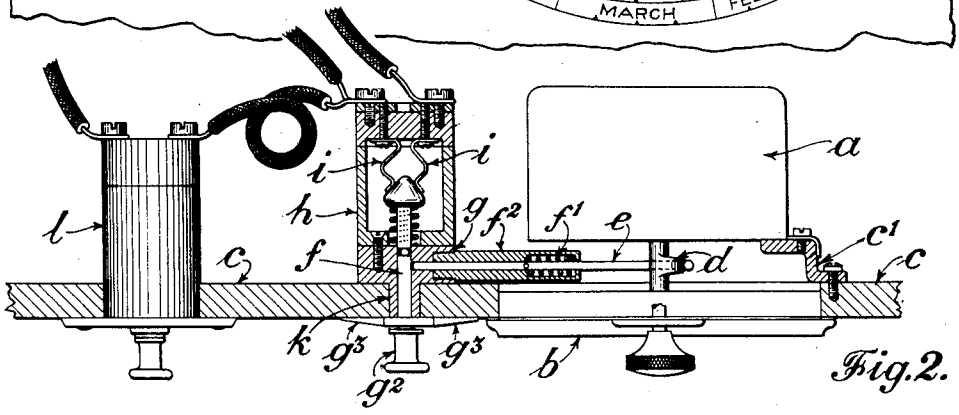


Fig. 2.

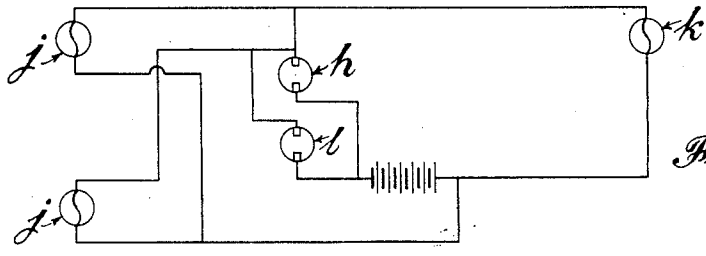


Fig. 3.

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Patented June 11, 1929. 1,716,690

UNITED STATES PATENT OFFICE.

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LIGHTING OF VEHICLES.

Application filed November 8, 1927, Serial No. 231,961, and in Great Britain July 29, 1927.

This invention relates to new or improved mechanism for automatically controlling the lighting of electrically lighted automobiles.

The object of the invention is to provide means for automatically switching on the lights of the vehicles at any predetermined time, and thus relieve the owner or driver of the responsibility of returning to the vehicle to switch on the lights at the correct time, and of the anxiety that he may forget or for some reason be unable to do so. A further object of the invention is to provide an instrument suitable for the dashboard of an automobile, and so simple in construction that its manner of operation would immediately be apparent to any person of ordinary mechanical ability handling it for the first time and so that it is substantially proof against damage during the preliminary examination and operating which it would receive at the hands of such person. In attaining this last object a further object is achieved in providing an instrument which can be operated so quickly, easily and positively as to encourage regular use whenever the vehicle is to be left unattended where lighting-up is necessary. Another object is to provide indicia by which the setting of the automatic control mechanism for different time periods of the year, or for different lighting up times for different parts of a country, or for different countries can be readily determined.

According to the invention, a spring clock is employed similar to that commonly used on automobiles, and also an electric switch in proximity to the clock and in circuit with the lighting system of the vehicle, the switch being bodily movable around the clock face. Combined with the switch are means for holding same normally "open", and between the switch and the hour hand spindle of the clock, is mechanism which, with the movements of the clock, will automatically close the switch at a given time, corresponding to lighting up time, the said mechanism and the switch having been previously set to a position relatively to the clock face corresponding to such time.

The clock and switch are mounted on a board, which may be the usual instrument board of the vehicle, or a separate board fixed in a position where it can be easily seen by the driver of the vehicle.

There will usually be the main switch of the lighting system in addition to the automatic switch aforesaid, the two switches being wired in parallel.

On the face of the said board are markings to indicate the months of the year, and the months are arranged opposite the "times" at which the lights require to be switched on in such months.

In using the improved devices the switch, which is provided with a knob and pointer, is first moved until it comes to a point opposite the month corresponding to the month in which the vehicle is being used.

With the clock wound up and set to the right time, the switch release mechanism between the hour hand spindle and the switch eventually operates to release the switch at the correct moment for lighting up, and thereby completes the circuit of the vehicle lamps.

The accompanying drawing illustrates one embodiment of the invention:

Fig. 1 shows a front view of a clock, and of the mechanism for controlling the lighting up of the vehicle lamps.

Fig. 2 shows a section plan of Fig. 1.

Fig. 3 shows a diagram of the wiring for three lamps, the main switch and the automatic switch.

a is the clock, which is of any suitable pattern, and *b* is the usual bezel or front mounting of the clock, the latter being let into an opening in a board *c*, which may be the dash board of the vehicle or a separate board, while the former is secured to the rear of the board by any suitable means.

In the example shown, a series of small brackets c^1 are used for securing the clock to the board, and at the same time leaving a space between the clock and the rear face of the board. *d* is a cam on that part of the spindle of the hour hand of the clock extending across said space, while *e* is a rod, which also extends into said space, and lies with its cranked end in the path of the cam, see Fig. 1. *f* is a plunger, forming part of a switch. In such plunger is an annular groove, with which the near end of the cam rod normally engages under the pressure of a spring f^1 within the tubular guide f^2 connected to a carrier block *g* carrying the switch casing *h*. Within this casing are the spring contact blades *i*, *i*, connected in parallel with the main switch and with the vehicle lamps. *k* is a curved slot in the board *c*,

which extends around the clock from points opposite the hours 3 to 11, or thereabouts. The carrier block g slidably fits the slot k, small rollers g^1 helping to reduce friction, and on the front end of the block is a knob g^2 and a pointer g^3.

The cam-engaging end of the rod e is held in the plane of the cam movements by being cranked where it enters the guide f^2, the guide at such point also being slotted.

Upon the face of the board c are printed the names of the months of the year, each month coming opposite the time for lighting up in such month. In the case of countries where the time of day in summer differs from the time of day in winter, as in Great Britain, there will be two sets of months printed on the board, one for summer time and the other for winter time, as shown in Fig. 1. In the case of countries where the time of day differs in different parts of the country, as in U. S. A., there will also be a set of months for each time, assuming it is likely that the vehicle will be used in all parts of the country. When there is only one time of day, a single set of months only will be printed on the board.

To facilitate the more accurate positioning of the carrier block along the slot c, the words on the board may be surrounded by lines, which may be marked with dots, or small lines corresponding to the four weeks of the month.

In Fig. 3, j, j are side lamps and k the tail lamp of the vehicle, l the main hand-operated switch and h the automatic switch. The vehicle lights may be switched on and switched off at any time by the main switch, and switched off at any time by the automatic switch.

By the use of the cam d acting tangentially on the cranked end of the rod e, the mechanism is fool proof, any swinging of the carrier block and rod the full length of the slot c merely causing the rod to rub over the cam. Further, by making the switch bodily movable, the mechanism for controlling the switch is made very simple.

To reset the switch mechanism after use, the plunger f is drawn back until the cam rod enters the groove in the plunger.

A particular advantage of this invention is that an ordinary clock is employed, and that no alteration of the clock, other than the addition of the cam, is necessary to effect the purposes of the invention, thereby enabling the invention to be applied at a cost little more than the cost of an ordinary clock without the automatic lighting mechanism. Further, the clock can be the usual dash board clock and not a special clock.

What I claim is:

1. In means for automatically lighting up the lamps of an electrically lighted automobile at predetermined times, the use in combination with a spring clock of a board to which the clock is fitted, printed with the months of the year arranged opposite the lighting-up times of such month, an electric switch in circuit with the vehicle lamps, means for holding the switch normally open, and mechanism between such switch and the hour hand spindle of the clock engaging said switch, whereby with the movements of the clock, said switch will be automatically closed at a given time corresponding to lighting-up time and the vehicle lamps lighted, after previously setting the mechanism to a position corresponding to such time, as set forth.

2. In means for automatically lighting up the lamps of an electrically lighted automobile at predetermined times, a spring clock, a board to which such clock is secured, a cam on the spindle of the hour hand of the clock, a movable switch and switch casing near the clock, a carrier for said switch casing, means between one member of the switch and the cam, which normally hold said switch member clear of the other members of the switch, these latter being in circuit with the vehicle lamps, and means which allow the switch carrier and cam-operated means to be moved to various angular positions around the clock dial, as set forth.

3. In means for automatically lighting up the lamps of an electrically lighted automobile at predetermined times, a spring clock, a board, with through opening, to the rear of which the casing containing the works of the clock is secured at a slight space therefrom, while the clock face is secured to the front of the board and over said opening, a cam on the hour hand spindle of the clock which spindle crosses the space between the clock casing and clock face, a rod with cranked end extending into said space and lying near to, and in the plane of, the cam, a guide for said rod and a spring in said guide for pressing the rod against the cam, a block carrying said guide, a switch casing also carried by said block, and enclosing a cone-ended plunger with groove in its periphery for the cam rod to engage, and two spring contact blades in circuit with the vehicle lamps, said board having a curved slot and said carrier block slidably fitting said slot, and adapted to be moved, and to move the cam rod to various angular positions around the clock dial, as set forth.

In testimony whereof I have signed my name to this specification.

LEON GASTON.