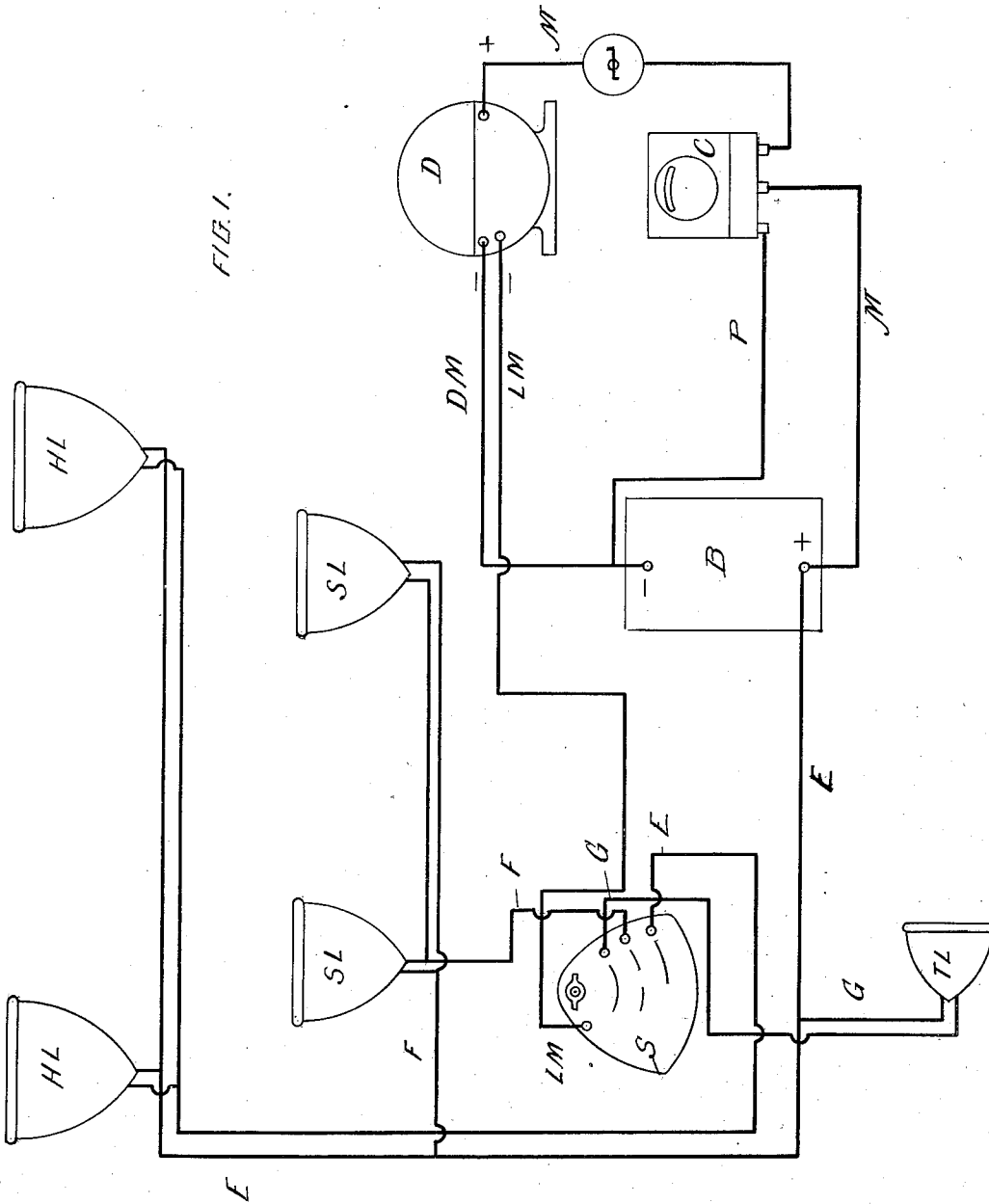


APPLICATION FILED SEPT. 14, 1910.

Patented Jan. 16, 1912

FILE 1.



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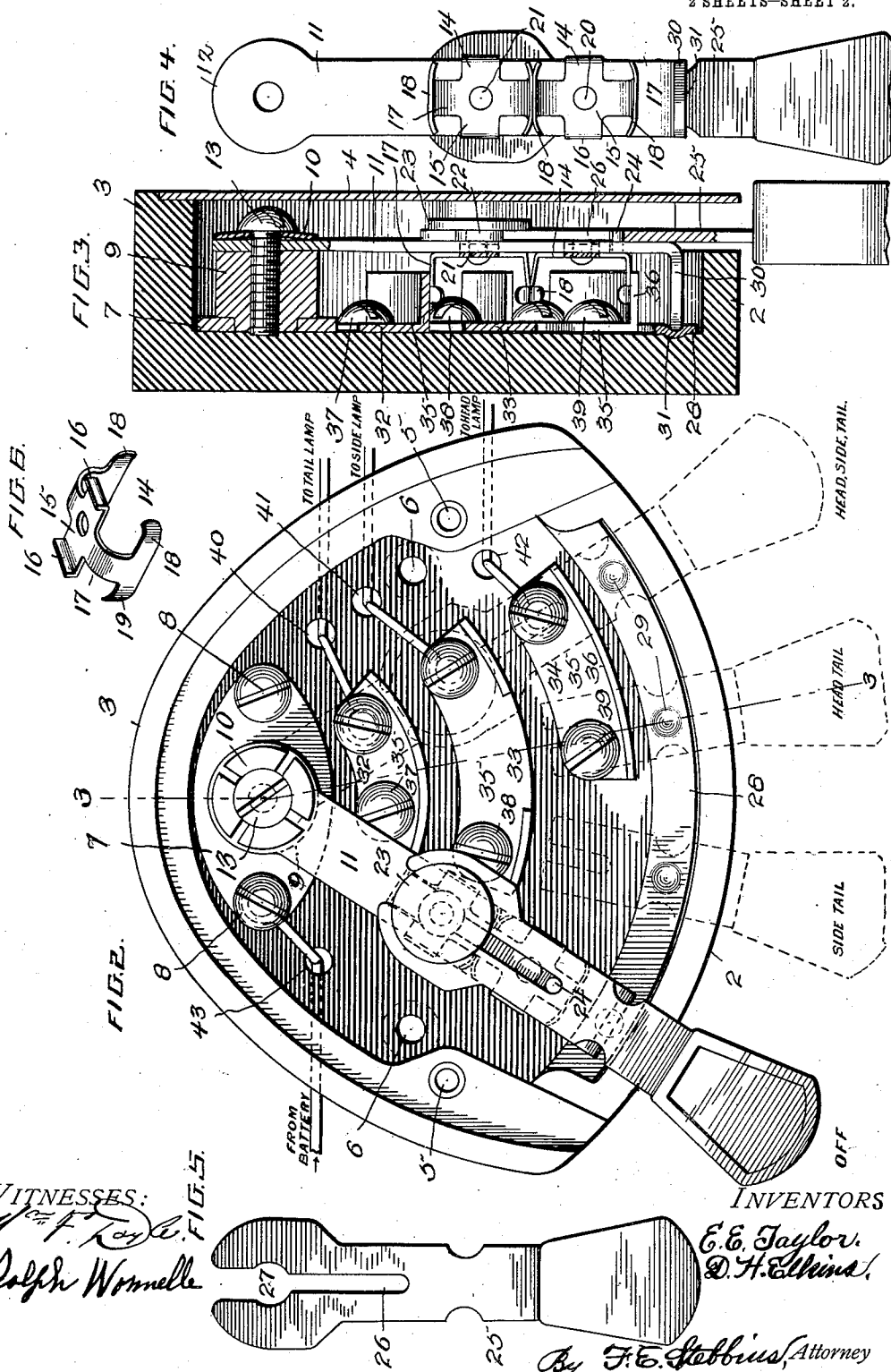
SWITCH.

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2 SHEETS—SHEET 2.



WITNESSES:

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SWITCH.

1,015,097.

Specification of Letters Patent.

Patented Jan. 16, 1912.

Application filed September 14, 1910. Serial No. 582,009.

To all whom it may concern:

Be it known that we, EDWARD E. TAYLOR and DAVID H. ELKINS, citizens of the United States, residing at Amesbury, in the county of Essex and State of Massachusetts, have invented certain new and useful Improvements in Switches, of which the following is a specification.

Our invention relates to switches adapted for use in connection with circuits for electric lights, especially such as shall be adapted for use in connection with lamps for automobiles, and the main object of our invention is the provision of a switch whereby a series of two or more lamps may be lighted simultaneously, for instance, a tail and side lamps, a tail and head lamps, a tail, side and head lamps, and, further, whereby in changing from one series or combination to another all the lamps shall not be cut out or extinguished.

A further object is the provision of a switch which shall provide ample contact surfaces for the transmission of a relatively large electric current of relatively low voltage.

With these ends in view our invention consists in certain novelties of construction and combinations of parts as hereinafter set forth and claimed.

The accompanying drawings illustrate an example of the physical embodiment of the invention constructed and combined according to the best mode of procedure we have so far devised for the purpose.

Figure 1 shows by a diagram a dynamo, a secondary or storage battery, and automatic cut-out, a switch, electrical circuits, a tail lamp, two side lamps, and two head lamps. Fig. 2 is a top plan view of the switch with the plate cover removed. Fig. 3 is a section of Fig. 2 taken on line 3—3 and through the lever and handle when on line 3—3. Fig. 4 is a bottom plan view of the shiftable lever and detachable handle. Fig. 5 is a plan view of the handle detached from the lever. Fig. 6 is a perspective view of one of the two movable spring arm contact elements or pieces detached from the lever.

Referring to the figures, the letter D designates the dynamo; B, the secondary battery; C, the automatic cut-out; S, the switch; TL, the tail lamp; SL, the two side lamps; HL, the head lamps; LM, the main circuit from the dynamo to the switch; DM, the

main circuit from the dynamo to the battery; M, the main circuit from the dynamo through the automatic cut-out to the battery; P, the potential wire from the battery to the automatic cut-out; E, the head light circuit; F, the side light circuit; G, the tail light circuit.

The switch consists of a hollow box like body structure made of any suitable insulating material, such as hard or vulcanized rubber, of the general shape shown by Fig. 2, having one edge 2 of less depth than the curved edge 3, and provided with a removable cover 4, which is secured to the body portion by screws passed through the cover and seated within holes 5 at the sides of the body portion. The holes 6 are for the reception of screws to secure the switch to the heel board, dash, or side of an automobile.

Referring to the metal elements of the switch, which may be of brass, the numeral 7 designates a base plate having screw holes; 8, screws which secure the plate to the body of the switch; 9, a perforated post; 10, a perforated spring washer; 11, the lever of resilient metal; 12, the perforated end of the lever; 13, a screw passed through the end of the lever, the washer, and the post; 14, the two movable metal contact pieces at the under surface of the lever located side by side, each contact piece consisting of a perforated base 15, with clips 16 at right angles to the base to engage the side edges of the lever, and two curved spring arms with side extensions 18 each with inwardly bent ends, each extension presenting a bearing surface 19 of a relatively large area; 20, a rivet by which one contact piece is secured to the outer end of the lever; 21, a stem of a post 22 which secures the other contact piece to the lever, said post being surmounted with a head 23 beneath which the forked end of the detachable handle is located; 24, a pin projecting from the top surface of the lever; 25, the detachable handle having an open slot 26 enlarged at 27, the slot 26 receiving the pin 24 and the slot at 27 receiving the post 22 with which the edges of the metal bounding the enlarged part 27 is in frictional contact to retain the handle normally in place; 28, a curved strip of metal secured to the inner surface of the body of the switch adjacent to the edge 2 and having seats 29 formed by upsetting the metal;

30, the end of the lever having a point 31 which is adapted successively to engage the seats 29 and anchor the lever by frictional contact and the resilient pressure of the lever; 32, 33, 34, the fixed contact pieces each consisting of a perforated base 35 and a curved flange 36 at right angles to the base, the contact piece 33 however having two separate flanges located at the ends of the base; 37, screws to secure contact piece 32 to the base; 38, screws which secure the contact piece 33 to the base; 39, screws which secure the contact piece 34 to the base; 40, a hole in the base for the passage of the end of the tail lamp circuit wire to the screw 37 around the shank of which the wire is wound; 41, a hole in the base for the passage of the side lamp wire to the screw 38; 42, a hole in the base for the passage of the head lamp wire to the screw 39; and 43 is a hole in the base for the passage of the wire LM to the screw 8, said screw, the base plate 7, post 9, lever and movable contact pieces on the lever forming a continuation of the circuit.

When the lever is in the position shown in full lines Fig. 2 the movable contact pieces obviously are out of contact with the fixed contact pieces and the circuits broken. To light the tail and side lamps the lever is shifted to the first position shown in dotted lines Fig. 2. To light the tail and head lamps the lever is shifted to the second position; and to light the tail, side and head lamps the lever is shifted to the third position shown by dotted lines. It will be noted that the tail lamp is continuously in circuit and that when the side lamps are cut out and the head lamps are cut in the said tail lamp is not extinguished; and that when all the lamps are in circuit the side lamps can be cut out without extinguishing the tail and head lamps. Obviously the handle can be detached from the lever when it is desired that unauthorized persons shall not tamper with the switch, any of the series of the lamps being left lighted. Further, it will be noted that the handle and lever are adapted to be moved only through a very small arc of a circle and that by shifting the lever and handle to its extreme position at the left all the lamps will be cut out of circuit.

From the foregoing description taken in connection with the drawings it is clear that we have provided an improved switch and a disposition of circuits relative thereto and in combination therewith which are especially adapted for use in connection with electric lamps for automobiles.

What we claim is:

1. A switch having a body portion of insulating material, three separate insulated contact pieces fixed thereto, each of two of said contact pieces having a continuous un-

broken surface, and the third contact piece having a base and two separate curved surfaces located in the same arc of a circle, and a single lever pivoted to the said body portion said lever having contact pieces of spring metal in connection therewith and carried thereby.

2. A switch having a body portion of insulating material, a single insulated lever pivoted at one end to the body portion and carrying contact pieces, and three fixed insulated contact pieces arranged in parallel arcs of circles; two of said fixed contact pieces having a single contact surface one of which is adapted to continuously engage a contact piece on the lever when the circuit is closed, and the third contact piece having a common base with two separate contact surfaces, for the purpose set forth.

3. A switch consisting of a box like body portion of insulating material with a cover and a slot in the side of the body portion, a lever with a handle extended through the said slot outside the body portion, means for pivoting the lever to the base of the body portion, contact pieces carried by the lever, means for connecting the lever with one terminal of a source of electrical energy, three separate fixed contact pieces secured to the body portion, and means for connecting each contact piece with the other terminal; the said fixed contact pieces being arranged in parallel arcs of circles corresponding with the slot in the said body portion, and one of said contact pieces having two separate contact surfaces adapted to be successively engaged by a contact piece on the lever.

4. A switch consisting of a box like body portion of insulating material provided with a cover and having a slot, a lever of resilient material pivoted to the base of the body and carrying contact pieces, a handle projecting through the said slot and outside the box and connected with the lever, separate insulated fixed contact pieces secured to the body portion, and a metallic strip having a series of seats or recesses secured to the interior of the body portion; the lever being provided with a projection adapted to successively engage the said seats or recesses in the metallic strip, whereby said lever may be held successively in fixed positions relative to the fixed contact pieces.

5. A switch consisting of a box shaped body portion of insulating material with a cover and said box having an open slot in the body of the same, a post secured to the body portion, a single lever pivoted to the post and having contact pieces all of which are secured to the surface of the lever, said lever also being provided with a handle extended through the said slot, three separate fixed contact pieces secured to the said body portion and arranged in parallel arcs each

of two contact pieces consisting of a base and a curved flange, and a third contact piece consisting of a base and two separate curved flanges located in the same arc of a circle.

6. A switch consisting of a box shaped body portion of insulating material with a removable cover and an open slot in the side thereof, separate fixed contact pieces one with two curved flanges and a common base secured to the inner surface of the body portion, a single lever pivoted to a post within the box and carrying contact pieces, each of said contact pieces on the lever having a spring metal arm with a surface adapted to frictionally engage a side surface of a curved flange of a fixed contact piece, and a handle projecting through the open slot in the box for shifting the lever.

7. A switch consisting of a box shaped body portion of insulating material with a removable cover said box having a slot in the side thereof, a post secured to the inside of the box, a single lever having a handle located within the slot and said lever carrying contact pieces and pivoted to the post, and three separate contact pieces each with a perforated base and a flange secured by screws to the inner surface of the box; the said body portion having holes for the pas-

sage of circuit wires to the screws which secure the bases of the contact pieces to the said body portion.

8. A switch consisting of a box shaped body portion of insulating material with a cover, said box having an open slot in the edge of the same when closed by the cover, a lever within the box carrying contact pieces and pivoted to the base, separate insulated fixed contact pieces within the box adapted to be engaged by the contact pieces on the lever, and a handle detachably secured to the lever and extended through the slot to a position outside the box.

9. The combination with a switch lever, of a contact piece having a perforated base, lugs which engage the side edges of the lever, and two spring arms extended downwardly from the base each arm at the end thereof having outwardly extended projections with bent ends, and said contact piece riveted to the lever.

In testimony whereof we affix our signatures in presence of two witnesses.

EDWARD E. TAYLOR.
DAVID H. ELKINS.

Witnesses:

FRED A. BROWN,
GEORGE W. CATE.