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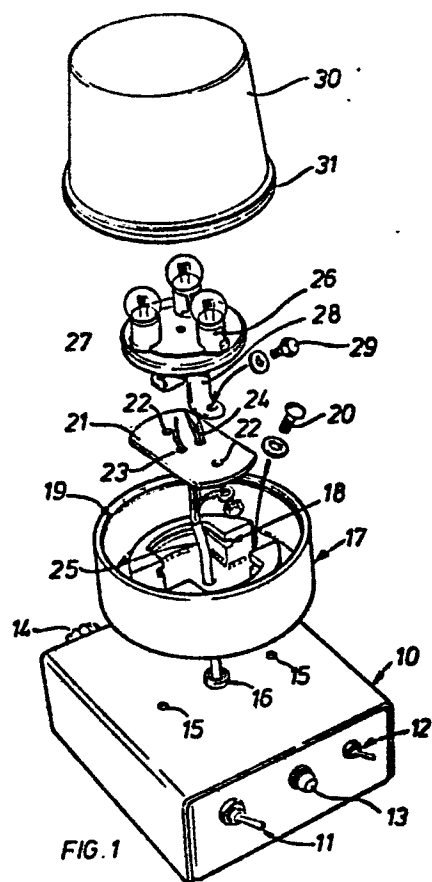
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54 **Signal lamp with control circuit.**

57 A signal device comprising a casing, a plurality of lamp holders for lamp means disposed within said casing, a light transmitting cover for said lamp means, a control circuit connected to said lamp holders, said control circuit being switchable to illuminate a plurality of lamps in said holders simultaneously in at least two predetermined modes. The circuit includes means for supplying an electrical current to each lamp at least during periods when said each lamp is not illuminated said electric current being sufficient to maintain the filament of each said lamp at black heat.

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SIGNAL DEVICES

TITLE MODIFIED
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This invention relates to signal devices.

According to one aspect of the present invention I provide a control circuit having a controlled output, said circuit being switchable so as to provide at least two
5 controlled outputs, one of said outputs being a coded signal and another of said outputs being a regular pulsed output.

According to another aspect of the present invention a signal device comprises at least one holder for lamp means arranged within a cover and connected or adapted to be
10 connected to a control circuit which control circuit is switchable so as to illuminate said lamp means in at least two predetermined modes.

The predetermined modes may, for example, be a regular flashing and a predetermined coded signal flash which
15 may be a morse code signal, One particular example is the morse code distress signal S.O.S.

If desired a circuit may be switchable to provide continuous illumination, such a facility being particularly useful, for example, where the device is to be used as a
20 running light in marine applications.

According to yet another aspect of the present invention a signal device comprises a casing in which a plurality of holders for lamp means are provided, a light transmitting cover, the holders being connected or being
25 adapted to be connected to a control circuit which is switchable to illuminate a plurality of lamps in said

holders simultaneously, in at least two predetermined modes.

The circuit arrangement is preferably such that in the event of failure of one of the lamps in the lamp holder
5 cluster the other lamp or lamps will continue to operate in accordance with the same predetermined modes.

The lamp means and the control circuit may be provided in a single unit which may be, for example, a unit adapted to be hand-held. Alternatively the lamp means
10 may be provided with one unit of the circuit separate from the other unit which may be, for example, adapted for panel mounting so that remote operation of the lamp means is possible.

Conveniently, the control circuit comprises a shift
15 register which is preprogrammed by diode connection at the appropriate positions in the register so as to give the desired signal.

Referring to the accompanying drawings;

Figure 1 is an exploded perspective view of the
20 device according to the present invention;
Figure 2 is a circuit diagram of a control circuit for use in a device according to the invention;

Figure 2A is a circuit diagram of a voltage-supply
25 circuit for use with the circuit of Figure 2;

Figure 3 is a circuit diagram of a lamp driver for use in a signal device which is adapted to be hand-held;

Figure 4 is a power-pack circuit diagram for a hand
30 held unit;

Figure 5 shows link "B" connected for repetitive flashing; and

Figure 6 shows link "A" connected for continuous
35 illumination.

Referring to Figure 1 a circuit casing 10 is arranged to include a control circuit (not shown) and is provided

with and ON/OFF switch 11 and a signal switch 12. A monitor lamp 13 is provided to monitor the signal of the lamps in the event that the circuit is used for remote operation of the lamps. This can be omitted if the device
5 is used as a hand-held unit. The casing 10 is also provided with a fuse means 14, fixing holes 15 and a cable exit 16 protected by a suitable rubber grommet.

Rubber lamp casing 17 is moulded to include a lamp holder support formation 18 and a cover retaining
10 formation 19. The casing 17 is secured to the casing 10 by means of screws 20 (only one is shown in Figure 1) which engage in the holes 15 in the casing 10.

A lamp support plate 21 is located in the formation 18 and is provided with fixing apertures 22 and apertures 23
15 through which connecting wires 24 of the cable 25 can pass.

Three lamp holders 26 are arranged on a disc 27 which in turn is supported on a bracket 28 secured to the support plate 21 by means of screws 29 (only one of these shown in Figure 1) engaging in fixing apertures 22.

20 The device is enclosed by a frusto-conical transparent cover 30 having an integral lip 31 which is received in the formation 19 to provide a weather-proof seal.

Whilst the device has been described as a single unit
25 unit, e.g., for hand-holding, it will be appreciated that the casing 17 can be secured to any suitable support by means of a pair of fixing screws 20 and the casing 10 can be mounted in a remote panel.

A suitable control circuit is shown in Figure 2
30 of the drawings. It comprises a series of four 8-bit serial shift registers IC1, IC2, IC3 and IC4, the outputs to said shift registers being connected to a plurality of diodes in a programmed manner. The pattern shown in Figure 2 is arranged to give a morse code signal for S.O.S.

35 When the switch S1 is in the position shown in Figure 2 and the link "B" is made as shown in Figures 2 and

5 the output from pin 3 of the oscillator IC8 is delivered to the driver circuit and produces a steady pulse at a rate determined by the value of the capacitance of C1 and the resistance of R1. This is a repititive flash mode and the
5 clocking function through the shift register is held at reset.

When the switch S1 is operated to its alternative position reset is removed from the shift register and the oscillator IC6 fires. This puts the initial one shot into
10 the shift register which is clocked through the shift register via an oscillator IC7 at a rate which is determined by the capacitance of C2 and resistance of resistor R2.

This shift register pulse is decoded by the diode connections and is passed to the driver circuit which
15 includes transistors TR1 and TR2.

When the switch is returned to its initial position as shown in Figure 1 the shift register is reset and the unit is returned to its repititive mode.

The OSH (one shot) is adjusted to be not less than
20 0.6 and not more than 0.75 of the frequency of the oscillator 1.

When link A is made instead of link B as illustrated in Figure 6 the unit can function as a permanent beacon instead of giving a repititive pulse. This enables the
25 device to be used, for example, as a running light for water-borne craft.

The transistor TR4 as illustrated in Figure 2A is a constant voltage/overload protection circuit which ensures a steady voltage supply when the unit is in use. Such a
30 protection circuit is desirable when the device is to be used in a vehicle, water-borne craft or aircraft when the supply voltage may vary about the normal 12 volts.

The transistor TR2 is biased from the positive supply feed line to the base of the transistor thus
35 providing a permanent current supply to the lamps in order

that filaments are permanently retained to black heat. This facility not only ensures the longer lamp life but also facilitates the illuminated pulse being maintained at a constant duration.

5 It will be appreciated that the 8-bit serial shift registers employed in this circuit may be replaced by an alternative register to accomodate any desired length of signal and decoding sequence. The diode connections can be multi-banked to a suitable selector switch so that a single
10 circuit may be employed to provide a plurality of different coded signals.

The circuit shown in Figure 3 is an alternative lamp driver for use with a hand-held unit and is connected to the point "C" in the unit shown in Figure 2. When the
15 circuit is used in this manner then transistor TR4 of the protection circuit is omitted and the unit powered by suitable battery power-pack as illustrated in Figure 4.

In the foregoing description the invention has been described in relation to an illuminated signal device.
20 It will be appreciated, however, that the circuit described can be used to control an alternative signalling means, e.g., radio signals.

1. A signal device comprising at least one holder for lamp means arranged within a light transmitting cover and connected or adapted to be connected to a control circuit characterised in that said control circuit is switchable
5 so as to illuminate said lamp means in at least two predetermined modes.
2. A signal device according to Claim 1 characterised in that a plurality of holders for lamp means are provided and said control circuit is switchable to illuminate a
10 plurality of lamps in said holders simultaneously in at least two predetermined modes.
3. A signal device according to Claim 1 or 2 characterised in that one of said modes comprises a predetermined coded signal.
- 15 4. A signal device according to Claim 3 characterised in that the coded signal is the morse code for S.O.S.
5. A signal device according to Claim 1 to 4 characterised in that another mode produces a repetitive pulsed signal.
- 20 6. A signal device according to any of claims 1 to 5 characterised in that the circuit is arranged to provide an output to each lamp holder continuously so as to maintain said lamps at a 'black heat'.
7. A signal device according to any of claims 1 to
25 6 characterised in that the circuit arrangement is such that in the event of failure of one of the lamps the other lamp or lamps will continue to function in the same mode.
8. A signal device according to any of claims 1 to 7
30 characterised in that it is provided with a casing adapted for panel mounting.
9. A signal device according to any of claims 1 to 7 characterised in that it is provided with a casing adapted to provide a hand-held unit.

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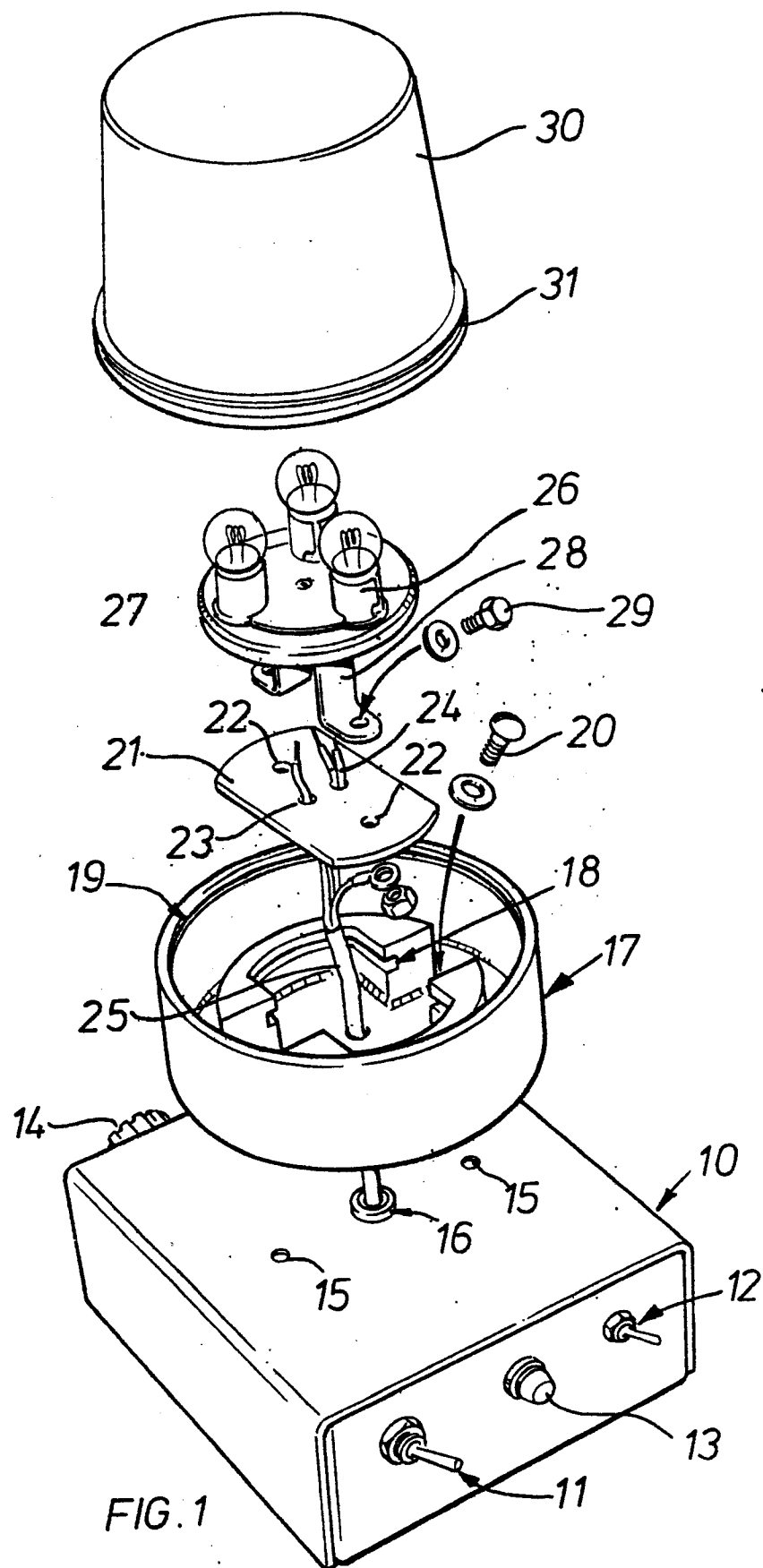
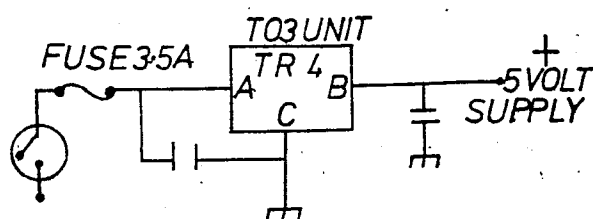


Fig. 2A



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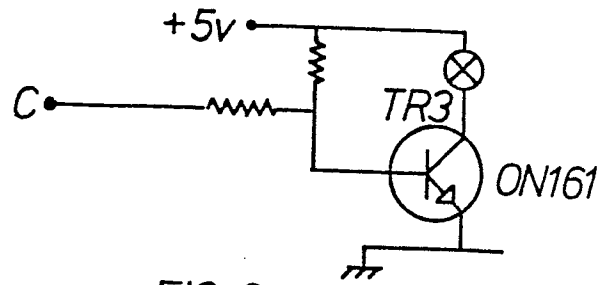


FIG. 3

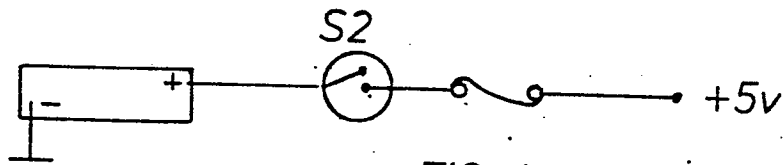


FIG. 4

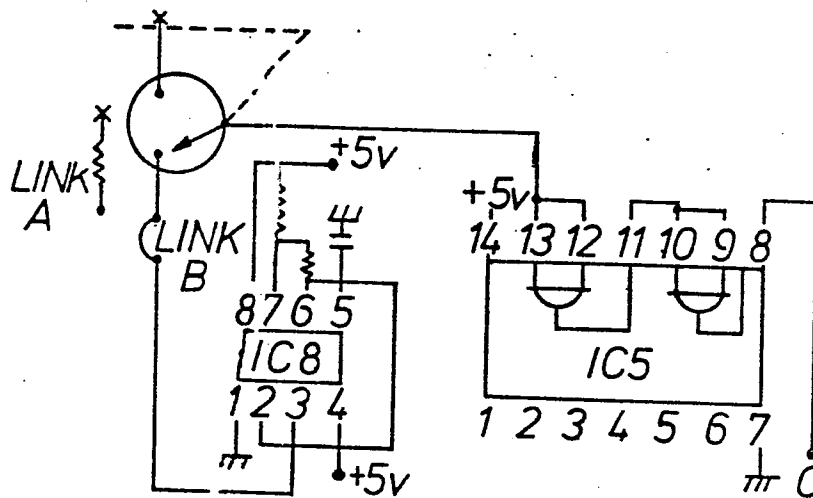


FIG. 5

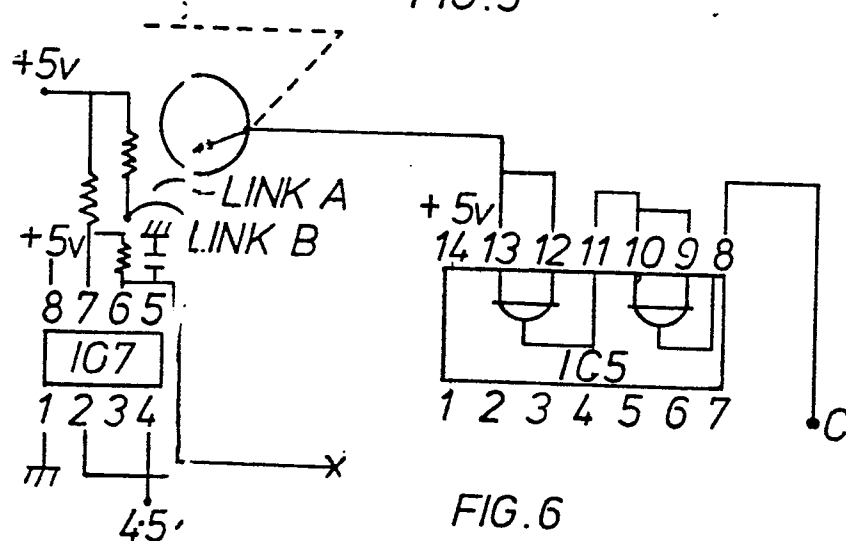


FIG. 6