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PATENT SPECIFICATION



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517,033

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COMPLETE SPECIFICATION

Improvements in or relating to Photo-Electric Distant Control Systems

We SOCIETÀ ANONIMA FIMI, of Via Saul Banfi, Saronno (Varese), Italy, a Company organised under the laws of Italy, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

The present invention relates to a photo-electric distant control device capable of producing at a distance step-by-step rotatory or translatory movement and simultaneously indicating at the control point the amplitude of such movement.

According to the invention the device comprises a graduated scale for indicating the displacement, borne by the same member as bears a record of control signal-impulses adapted to influence the rays employed for the photo-electric generation, a source arranged to direct suitable rays upon said record and photo-electric means arranged to generate control impulses under the influence of the rays as modified by the record and combined with amplifying means which govern a control circuit for producing step by step movement.

A compass installation has already been proposed in which the compass card (provided with the usual reading scale) also has a part of varying colour or of varying outline by which rays employed for the photo-electric generation of current in the circuit of an indicating instrument are continuously modified in accordance with the compass reading so as to produce a continuous variation of the indicator reading. In another arrangement described in Specification No. 27274/02 it was proposed to employ for indicating at a distance the position of a compass card several photo-electric cells arranged beneath the compass card, the latter having therein a plurality of slots for the passage of the generating rays, and said slots being so arranged that upon rotation of the card, the cells are exposed in succession.

The invention is particularly, though not exclusively, intended for application to radio receiving or transmitting apparatus having a remote tuning unit. In such

a case the remote control of the tuning operation may be obtained by means of signal-impulses which are generated with the aid of a record formed upon the same part as the graduated scale or indicating scale of a tuning control suitably arranged on the tuning unit.

The invention will now be more fully described with reference to the example of construction illustrated in the accompanying drawing, in which:—

Figure 1 is a perspective view of the control portion of a combined indicating and controlling device operating photo-electrically;

Figure 2 is a diagrammatic cross section of the control part of the device; and

Figure 3 is a diagrammatic illustration of the controlled portion of the device.

Referring to the drawing, the device comprises an endless band carrying a graduated scale 1 and running over rollers 2 and 2' past a pointer 4 fixed at 3. A zone of influence 5 for the photo-electric impulses, the zone comprising a series of slits in the band, is spaced out beside the graduated scale, and has arranged behind it a source 6 of invisible radiations, which is protected by a case 6'. A photo-electric cell 7 is arranged to receive the rays emanating from the source 6 and modified by the zone 5, said rays passing through a slit 8' in the case 8 of the cell. The terminals of the cell lead to an amplifier 9, which transmits the impulses generated by the cell to an electromagnet 10 which controls the movement of a ratchet gear 12 by which the member to be controlled is actuated.

Having now particularly described and ascertained the nature of our said invention, and in what manner the same is to be performed, we declare that what we claim is:

1. A photo-electric control device for producing at a distance step-by-step rotatory or translatory movement and simultaneously indicating at the control point the amplitude of such movement, comprising a graduated scale for indicating the displacement, borne by the same member as bears a record of control signal-impulses adapted to influence the rays

employed for the photo-electric generation, a source arranged to direct suitable rays upon said record and photo-electric means arranged to generate control impulses under the influence of the rays as modified by the record and combined with amplifying means which govern a control circuit for producing step by step movement.

2. A device as claimed in claim 1, in which said member is a movable endless strip of flexible material having a graduated scale marked thereon which is adapted to co-operate with a stationary indicator such for example as a pointer for indicating the extent of movement of the strip, and also having thereon a record formed by parts of different degrees of transparency, arranged in a band on the strip, by which a light source of the photo-electric system is variably obscured.

3. A device as claimed in claim 2, in which transparent parts comprise a series of slits in the strip.

4. A transmitting equipment for electric distant control systems employing photo-electric devices, having its parts constructed, arranged and adapted to operate substantially as hereinbefore described with reference to the accompanying drawing.

5. A radio receiver or transmitting apparatus having a remote control device as claimed in any of the preceding claims.

Dated this 14th day of July, 1938.

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FIG. 1

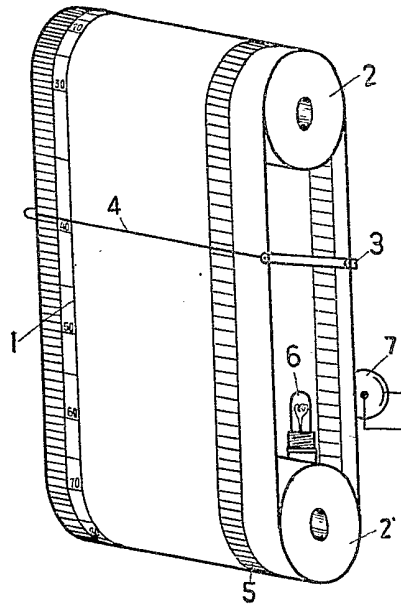


FIG. 2

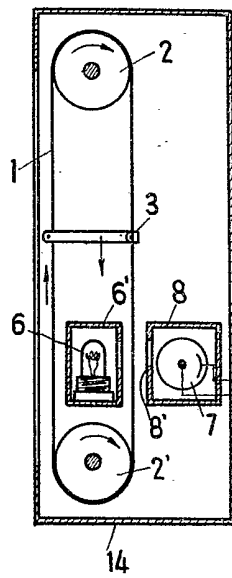
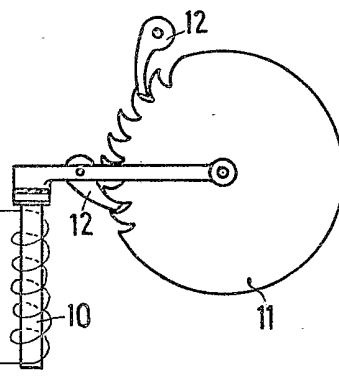


FIG. 3



[This Drawing is a reproduction of the Original on a reduced scale.]