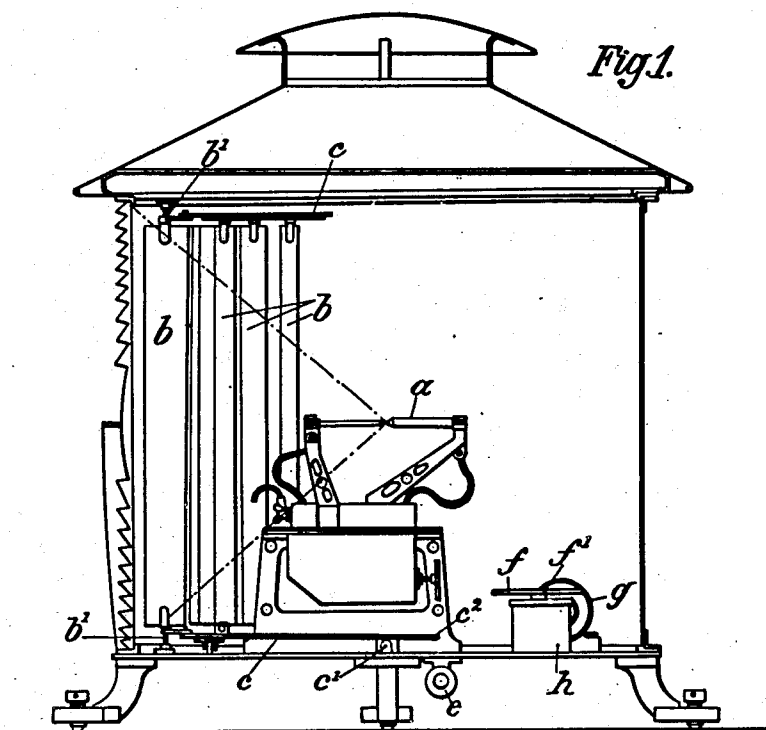


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OCCULTING LIGHT.
APPLICATION FILED APR. 3, 1919.

1,384,658.

Patented July 12, 1921.

3 SHEETS—SHEET 1.

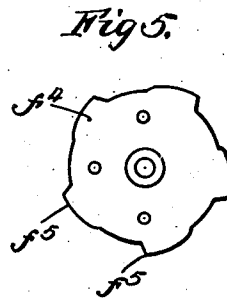
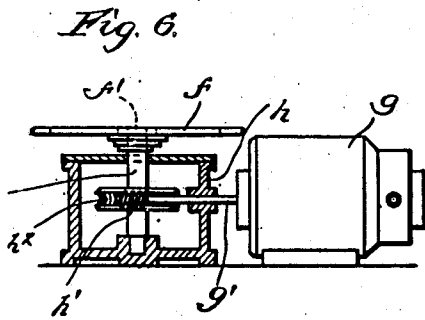
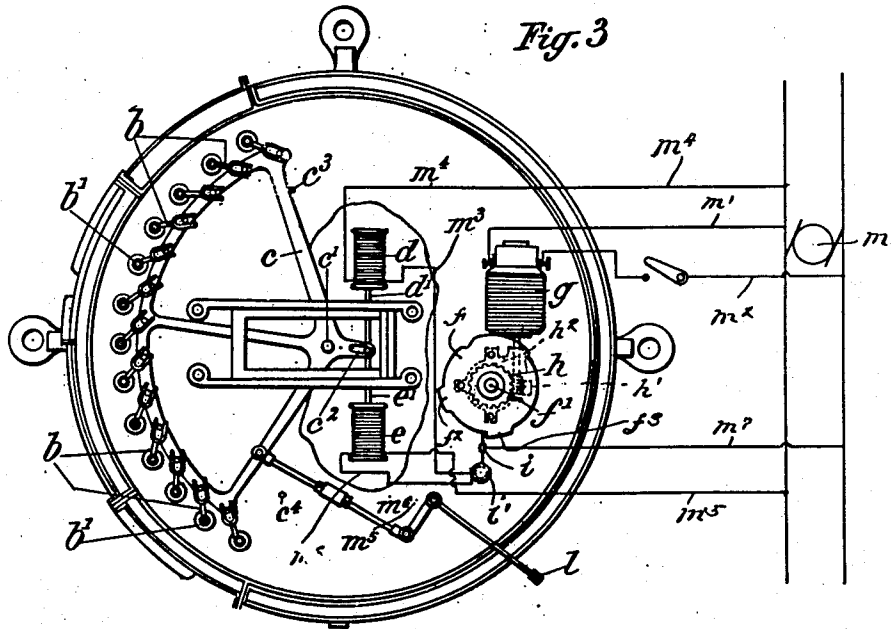


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3 SHEETS—SHEET 2.

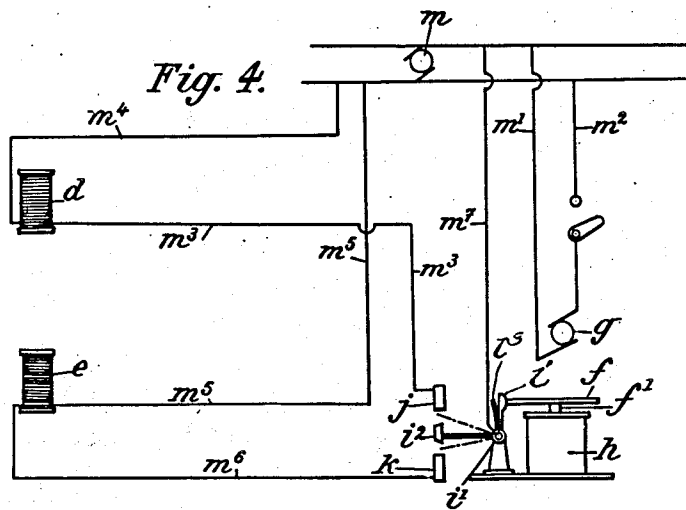
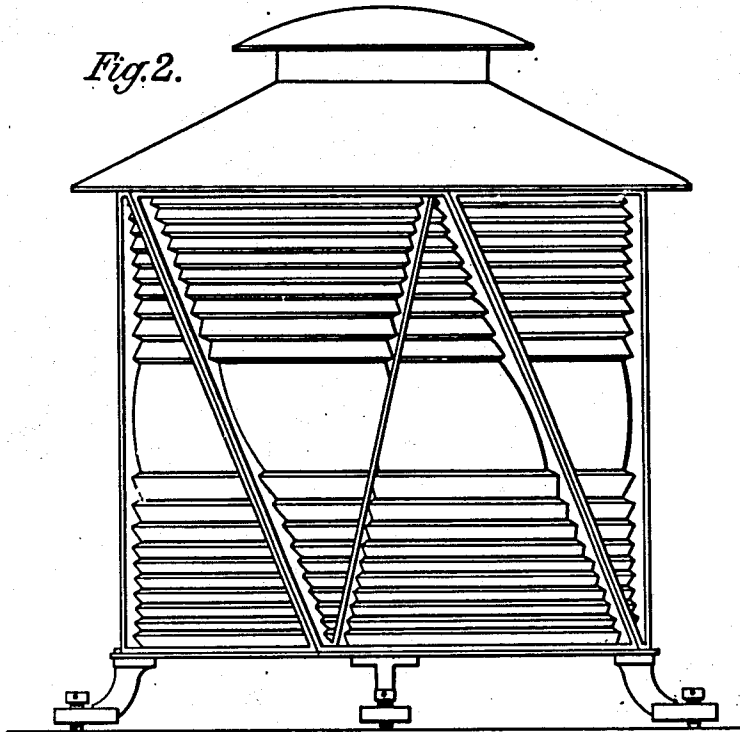


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UNITED STATES PATENT OFFICE.

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OCCULTING LIGHT.

1,384,658.

Specification of Letters Patent. Patented July 12, 1921.

Application filed April 3, 1919. Serial No. 287,336.

To all whom it may concern:

Be it known that I, HENRI LUGLIEN MARIE JOSEPH BÉNARD, engineer, a citizen of the Republic of France, residing at 82 Rue Curial, Paris, France, have invented new and useful Improvements in and Relating to Occulting Lights, of which the following is a specification.

The present invention relates to an occulting light designed to transmit to long distances luminous signals of any kind and, more particularly, for transmitting all the signals of the Morse code.

This lantern comprises, as an essential element, a device which permits of causing a succession of flashes and periods of darkness in such a way as to effect all the desired signals automatically.

The accompanying drawing shows purely by way of example an occulting light constructed according to the invention.

Figure 1 is a vertical section.

Fig. 2 is a front elevation.

Fig. 3 is a sectional plan of Fig. 1.

Fig. 4 is a diagrammatic detail.

Fig. 5 is a detail modified form of the cam disk.

Fig. 6 is a detail sectional view of the transmission and speed reducing mechanism between the drive motor and the cam disk.

The apparatus consists essentially of a lens of the usual type mounted in a weatherproof lantern. At the focus of the lens is arranged a suitable source of light, for instance a lamp *a* (Fig. 1) with horizontal carbons. The device serving to move the source of light *a* can be mounted for example on three screw-threaded rods having nuts and lock-nuts which can be operated by hand.

The device for making luminous signals consists essentially of an arrangement of vertical shutters *b* which can pivot about axes *b*¹ collectively, so as to cause occultation of the beam or to give it passage. The shutters can be connected to a common sector or quadrant *c* which pivots about an axis *c*¹ and can be actuated by any suitable motive power. In the example shown here, this drive is obtained from an electro-magnetic device. This latter consists essentially of two electro-magnets *d*, *e* which are excited individually and impart to the quadrant *c* a movement first in one direction and then in the other, according as to whether it is desired to cause the opening or closing of the shutters *b*. The cores of these electro-magnets are connected

by rods *d*¹, *e*¹ to an arm *c*² forming a part of the quadrant *c*.

The exciting current, generated by the dynamo *m* for example, can be supplied to the electro-magnets *d*, *e* by any suitable distributing means which will present itself to the engineer. The following, given merely as an example, is a description of a device fulfilling the conditions laid down.

This device consists essentially of a disk *f* mounted on an axis *f*¹ and having its periphery shaped to form cams *f*², *f*³. This disk receives from the dynamo *m* by the wires *m*¹, *m*² a rotary movement from a motor, for instance an electric motor *g*, a suitable speed reducing device *h* being interposed and including a worm *h*¹ on the shaft *g*¹ of the motor, which worm *h*¹ meshes with a worm wheel *h*² fixed upon the shaft *f*¹ which rotates the disk *f*. A bent lever *i* pivots about *i*¹ and plays the part of a distributor; it is held constantly in contact with the periphery of the disk *f* by means of a spring *i*² and serves by the aid of its contact *i*² to close the circuit, on the one hand to the electro-magnet *d* through the terminal *j* and the wires *m*³, *m*⁴ and, on the other hand, the circuit for the electro-magnet *e* through the terminal *k* and the wires *m*⁵, *m*⁶.

The distributor *i* is connected to one of the poles of the dynamo *m* by a wire *m*⁷; it may assume three positions; one sends the current to the electro-magnet *d*, the other sends the current to the electro-magnet *e*, while in the third position, neither of the electro-magnets is excited.

It should be pointed out that the electro-magnets only receive current at the moment of the opening and shutting of the shutters *b* and, a point which is very important, only at the instant at which the shutters are operated, so that any over-heating of these electro-magnets is avoided.

The three positions of the distributor *i* are controlled by the disk *f*, the number and shape of the cams thereon being varied according to the different characters of the Morse or other code which it is desired to emit. A single disk effects the opening and closing of the shutters, and this disk *f* can be rapidly and easily replaced by another, such as *f*⁴ shown in Fig. 5, which gives a different character to the signal incident to an increased number of cams *f*⁵.

A handle *l* enables one to manipulate the shutters by hand and to make any other

desired signals independently of those produced mechanically by means of the special disks.

The extent of movement of the quadrant *c* can be limited by means of abutments *c'*, *c''*, Fig. 3.

It is obvious that the quadrant *c* serving to operate the shutters *b* could be actuated by a mechanical device driven by the motor *g*, the speed reducer *h* and the disk *f*, instead of being driven electro-magnetically.

Finally, the lantern could be mounted on a carriage or trailer so as to be easily transportable.

15 Claims.

1. A light for signaling and other purposes, comprising a source of light, shutters adapted to obstruct or give passage to the beam, electro-magnetic means for moving said shutters in either direction, means for distributing current to said electro-magnetic device, and controlling means for said distributing device, said controlling means be-

ing changeable according to the signal to be transmitted.

2. A light for signaling and other purposes, comprising in combination, a source of light, shutters adapted to occult the light as required, a quadrant on which said shutters are mounted, two electro-magnets adapted to move said quadrant in opposite directions and means for distributing current to said electro-magnets in such a way as to produce any desired combination of movements of the quadrant.

3. A light for signaling and other purposes comprising in combination a source of light, shutters adapted to occult the light as required, a quadrant on which said shutters are mounted, two electro-magnets adapted to move said quadrant in opposite directions, a distributor for supplying current to said electro-magnets, and a cam disk adapted to actuate said distributor in accordance with the signal to be transmitted.

HENRI LUGLIEN MARIE JOSEPH BÉNARD.