April 24, 1934. C. BERNASCONI ET AL 1,956,339

ELECTROMECHANICAL LAMP

Filed June 30, 1930

FIG. 3.

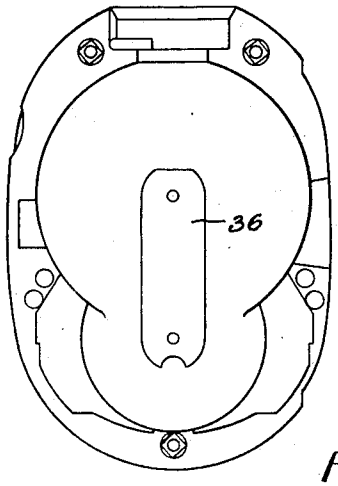


FIG. 1.

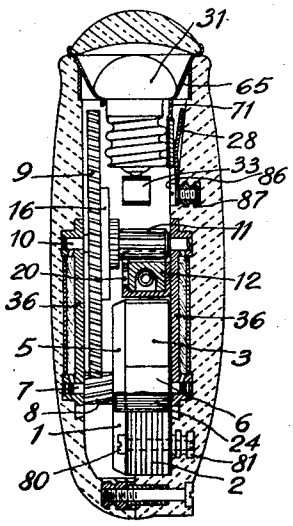


FIG. 2.

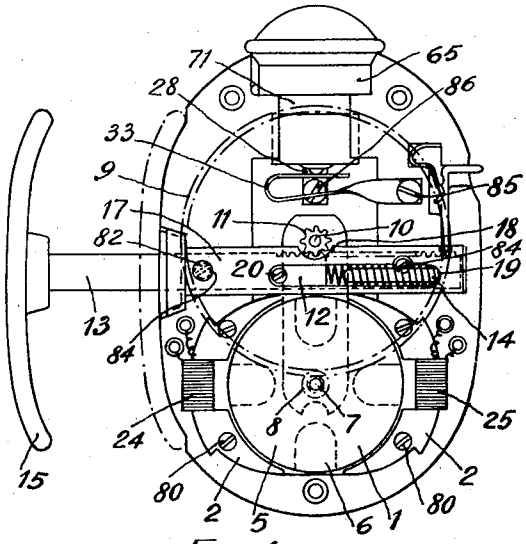
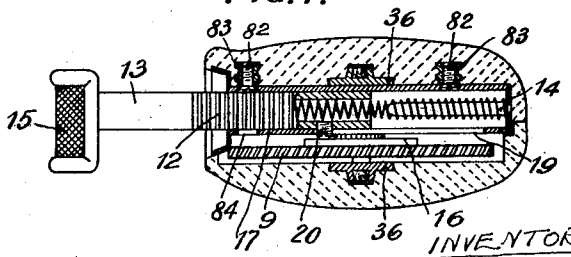


FIG. 4.



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1,956,339

ELECTROMECHANICAL LAMP

Charles Bernasconi and René Marie Berthier,
Savoy, France

Application June 30, 1930, Serial No. 464,987
In Germany July 2, 1929

2 Claims. (Cl. 240—10.5)

The present invention relates to an improvement of the electro-mechanical lamp forming the subject of the prior United States of America Patent No. 1,678,496 of July 24th, 1928, that is to say, a lamp consisting of an electro-magnetic machine, mechanism for actuating the movable portion of the machine, an incandescent lamp, and a casing enclosing the whole.

In the case of the aforesaid lamp it has been found that, in certain instances, it would be desirable to attach some of the fixed, or immovable parts of the mechanism in such a way that, instead of being embedded in the material of the lamp casing, as previously claimed, they are indirectly secured to the casing by means of members so embedded.

The novelty consists therefore in that, in a casing formed of several shells of moulded material, the fixed or immovable parts of the mechanism (the bearings for the shafts and mechanism of the machine and the parts connecting the incandescent lamp to the machine) are in part held in position simply by being embedded in the material of which the casing is made, and are in part detachably mounted on members similarly embedded in the material of the casing.

A method of manufacturing these lamps is as follows:

The material of which each of the shells of the casing is composed is placed in an open mould. By means of a first ram, the necessary recesses and gaps for the stationary parts of the machine (the fixed parts of the mechanism and members for securing same, the bearings for the shafts of the machine and the last named, together with the members for securing same, and also the connections) are pressed into the material. The parts to be embedded in the casing material are then temporarily attached to one or more other rams, by means of which rams they are inserted in the recesses previously provided in the material of the shells, and are secured therein by applying a somewhat more powerful pressure to the material, whereby the temporary attachment of all said parts to the ram or rams is released.

The drawing illustrates one embodiment of the lamp, which, in the example shown, is a pocket lamp.

Figure 1 is a longitudinal section,

Figure 2 a front elevation, one shell of the casing being removed,

Figure 3 shows an interior view of the shell detached from Figure 2,

Figure 4 is a cross section.

The electromagnetic machine according to this embodiment comprises a rotary induction coil 1 and a fixed armature 2.

The induction coil 1 is provided with a permanent magnet 3, of disc pattern, and is recessed at 6 so that four external poles result, and a body 5 of heavy metal, such as lead, which serves to increase the mass of the armature and also takes the form of a disc, filling the recesses 6 of the magnet, the whole forming a cylinder with two circular flat end faces. The induction coil 1 is keyed on a shaft 7 carrying a pinion 8 meshing with a gear 9 firmly mounted on a shaft 10 carrying a loose pinion 11 meshing with a rack 12. The teeth of the rack are cut in a bar 13 which, on the one hand, is subjected to a spring 14 operating by compression, and, on the other hand, is provided with a curved handle 15 which is actuated by the hand in which the lamp is carried, when the induction coil 1 is to be set in rotary motion. The spring 14 is threaded on a rod which is adapted to slide inside the bar 13. Between the pinion 11 and the gear 9 is interposed a clutch 16 which enables the gear 9 to be actuated by the pinion 11 only when the latter is rotated in the one direction, corresponding to the manual displacement of the rack 12. The bar 13 is partly housed in a guide 17 having the cross sectional form of a rectangular tube which is cut away at 18 for the accommodation of the pinion 11, and also at 19 for the accommodation of a stop 20 which limits the outward travel of the bar 13 under the action of the spring 14.

The ends of the shafts 7, 10 are mounted in sleeves carried by metal discs 36.

The armature 2 consists of two parts, of magnetic material and crescent form, surrounding the induction coil 1 and also includes the two coils 24, 25 associated with the respective parts of the armature.

The sleeve 71, reflector 65 and all the members supporting the incandescent bulb 31, are provided and mounted as in the main Patent No. 1,678,496.

In the present instance, however, the pole pieces of the stationary armature 2 are secured by means of four bolts 80 which screw into nuts 81 embedded in the casing, so that the armature 2, with the windings 24, 25, can be removed at any time. The same applies to the guide member 17, which is secured by two bolts 82 screwed into nuts 83 embedded in the casing. To enable these bolts 82 to be screwed home and loosened, the necessary recesses 84 are provided in the guide 17.

The two contact springs 33 and 28 are also secured by means of bolts 85 and 86, and nuts 87 embedded in the casing. These nuts are con-

nected with the series windings 24, 25 of the armature 2, by means of conductors (not shown) embedded in the material of the casing.

In other respects, the parts not described here, and also the manner in which the pocket lamp operates, can be seen in the main Patent No. 1,678,496.

What we claim and desire to secure by Letters Patent is:—

1. An electro-mechanical lamp comprising a divided casing composed of separably connected sections, bearing members embedded in said casing sections and having shaft and receiving openings, an armature having a shaft journaled at its ends in alined openings of said bearing members, a pinion on said shaft, field elements carried by one of the casing sections for cooperation with said armature, a lamp, connections from the field elements to said lamp, a drive shaft journaled at its ends in other alined openings of said bearing members, a gear on said drive shaft in mesh with the pinion of the armature shaft, a rack bar casing extended across the bearing member of one of said casing sections, nuts embedded in the latter casing section, screws extending through said rack bar casing into said nuts to positively removably fasten said rack bar casing to the last mentioned casing section, a rack bar slidably mounted within said rack bar casing, and a pinion on said drive shaft in mesh with said rack bar.

2. An electro-mechanical lamp comprising a divided casing composed of separably connected sections, bearing members embedded in said casing sections and having shaft end receiving openings, an armature having a shaft journaled at its ends in alined openings of said bearing members, a pinion on said shaft, field elements carried by one of the casing sections for cooperation with said armature, a lamp, connections from the field elements to said lamp, a drive shaft journaled at its ends in other alined openings of said bearing members, a gear on said drive shaft in mesh with the pinion of the armature shaft, a rack bar casing extending across the bearing member of one of said casing sections, means positively and removably fastening said rack bar casing to the last mentioned casing section, a rack bar slidably mounted within said rack bar casing, and a pinion on said drive shaft in mesh with said rack bar.

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