June 20, 1939. A. BOSCHÉ 2,163,188

REMOTELY CONTROLLED LUMINOUS EXHIBITOR

Filed Sept. 22, 1937

Fig. 1.

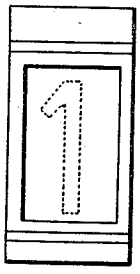


Fig. 2.



Fig. 3

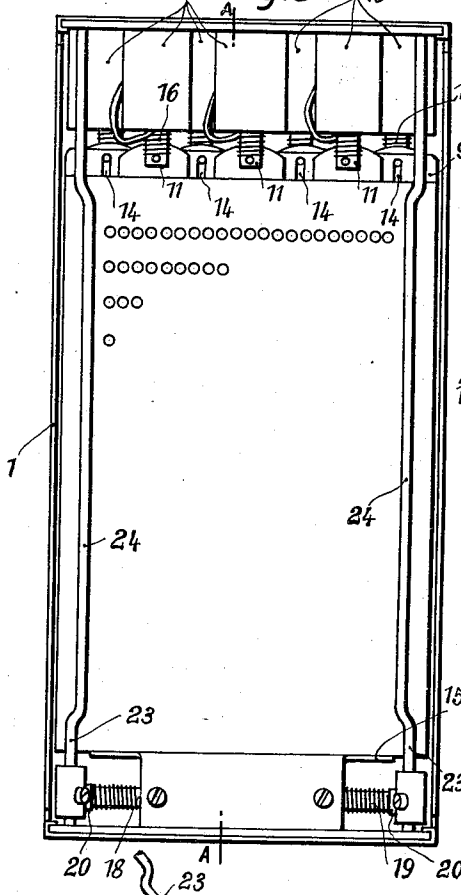


Fig. 4

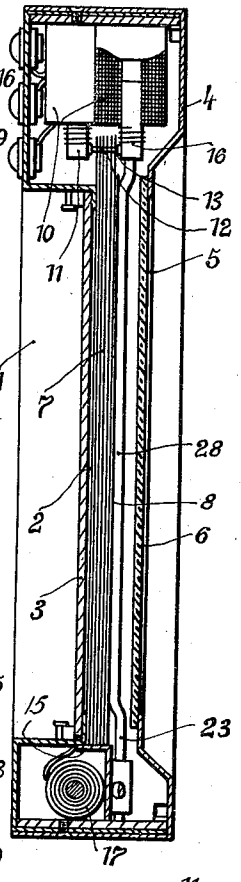


Fig. 5

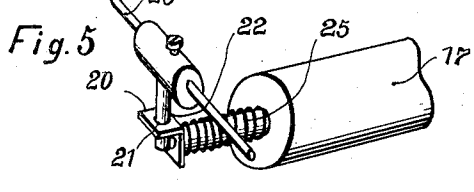
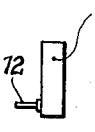


Fig. 6



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UNITED STATES PATENT OFFICE

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REMOTELY CONTROLLED LUMINOUS EXHIBITOR

André Bosché, Paris, France

Application September 22, 1937, Serial No. 165,188
In France September 24, 1936

6 Claims. (Cl. 40—28)

The present invention relates to that type of advertising device, sign, or changeable exhibitor in which a plurality of relatively movable plates are arranged in pack form and cooperate with other stationary plates and a luminous source to give selected indications according to the position of the movable plates with respect to one another and to the stationary plates.

Primarily the invention has for its object to provide electromagnetic means controllable from a remote point by any suitable controller or selector, for shifting the movable plates in a direction against gravity and holding them in the raised position should the magnet circuits become accidentally broken.

Again it is an object to provide means, when the lifting magnets are de-energized normally, for releasing the plate holding means to permit the movable plates to assume their normal or rest positions under the influence of gravity (aided or not by springs as may be desired).

Other objects will in part be obvious and in part be pointed out hereinafter.

To the attainment of the aforesaid objects and ends the invention still further resides in the novel details of construction, combination and arrangement of parts, all of which will be first fully described in the following detailed description, and then be particularly pointed out in the appended claims, reference being had to the accompanying drawing, in which:

Figure 1 is a front elevation on a reduced scale of an exhibitor embodying the invention.

Figure 2 is a side elevation thereof.

Figure 3 is an enlarged view of the exhibitor, in front elevation, the front cover having been removed.

Figure 4 is a vertical cross section on the line A—A of Figure 3.

Figure 5 is a detail perspective view of a portion of the apparatus.

Figure 6 is a detail elevation of one of the solenoid's cores and its plate-lifting pin.

In the drawing in which like numbers of reference designate like parts in all the figures, 1 represents a box having a chamber 2, and an opening in its back that is covered by a ground glass 3. The box also has a cover 4, having an opening 5 covered by a glass 6. Within the chamber 2 is a set of plates 7, 8 and 9.

In the preferred embodiment of the invention illustrated in the accompanying drawing there are seven movable plates 7, five of which are perforated and bearing two figures or signs, one a selecting plate with diagonal perforations, and another plate has holes in common with those of the other movable plates and is covered with colored cellulosic material. The eighth plate (movable plate 9) is a closing plate which is movable with each of the other movable plates. The plate 8 is a fixed plate.

Each of the seven movable plates 7 is individually controlled by an electromagnet 10 of the solenoid type, the several magnets being mounted in the upper end of the chamber 2 and each has a core-armature 11 having a pin 12 which passes through a slot 14 in the plate 9 and into a hole 13 in its respective plate 7. At the bottom of the chamber 2 is a support 15 on which the plates 7, 8 and 9 normally rest. Light springs 16 on the core-armatures 11 between magnets 10 and pins 12 may be used to augment gravity in returning lifted plates to their rest positions on support 15.

Mounted below the support 15 is a solenoidal magnet 17 having two core-armatures 18—19, one entering each end of the magnet. These core-armatures, at their outer ends, each carry an angle piece 20 which has a hole 21 into which projects a finger 22 secured on a shaft 23 journalled at its ends in suitable bearings in the top and bottom of the case 1. These shafts 23 are offset at 24 to press against the plate pack and hold the plates against movement, the pressure being applied by means of springs 25 on the core-armatures 18 and 19.

The magnet 17 is connected in series with each magnet 10 so that it will be energized at the same time a magnet 10 is energized and will thereby draw in the armatures 18—19, which rock 23, until 24 no longer presses the plates of the pack together; thus enabling the particular engaged magnet or magnets 10 to lift its or their plates.

Should the current fail in the circuit for any cause, magnet 17 will instantly release core-armatures 18—19 and springs 25 will at once rock shafts 24 to their pack-holding positions and prevent the raised plate from falling.

As soon, however, as the circuit is completed any any magnet 10 becomes energized magnet 17 will again pull in the core-armatures 18—19 and release any plates whose magnets 10 are not energized and those plates will return to their normal rest positions, leaving only the plates whose magnets 10 have been energized, lifted to their indicating positions.

In order to conserve space the magnets 10 are arranged in two rows and staggered.

Any suitable selector switch may be used to close the magnet circuits. I prefer to use one of

the known selector switches which utilizes a comb-relay actuated through a suitable button key-board. Since, however, the selector switch per se is no part of the present invention illustration and further description thereof is believed to be unnecessary.

The arrangement of the apertures in the several plates may be conventional and will of course depend on the specific use to which the apparatus will be put. When a light is placed behind the box the desired number, letter or symbol will be visible through the front plate 6.

From the foregoing description taken in connection with the accompanying drawing it is thought the construction, operation and advantages of the invention will clearly appear to those skilled in the art.

What I claim is:

1. In apparatus of the class described, a case having a chamber and an opening with a ground glass closure; a cover also having an opening with a glass cover, a pack of movable and perforated plates in said chamber, a support at the bottom of said chamber on which said plates rest, a set of solenoidal magnets mounted in the case above the plates, there being one solenoid for each plate, said solenoids having core-armatures with lift pins connected to their respective plates, means to hold the lifted plates in the pack against falling when their magnets become accidentally de-energized.

2. In apparatus of the class described, a case having a chamber and an opening with a ground glass closure; a cover also having an opening with a glass cover, a pack of movable and perforated plates in said chamber, a support at the bottom of said chamber on which said plates rest, a set of solenoidal magnets mounted in the case above the plates, there being one solenoid for each plate, said solenoids having core-armatures with lift pins connected to their respective plates, means to hold the lifted plates in the pack against falling when their magnets become accidentally de-energized, said last named means comprising elements pressing the plates of the pack together and an electro-magnet means for releasing the pressing elements while a plate lifting magnet is energized.

3. In apparatus of the class described, a case having a chamber and an opening with a ground glass closure; a cover also having an opening with a glass cover, a pack of movable and perforated plates in said chamber, a support at the bottom of said chamber on which said plates rest, a set of solenoidal magnets mounted in the case above the plates, there being one solenoid for each plate, said solenoids having core-armatures with lift pins connected to their respective plates, means to hold the lifted plates in the pack against falling when their magnets become accidentally de-energized, said last named means comprising two rock shafts at the sides of the box chamber and having off-sets to engage the front plate of the pack, spring means to cause said off-sets to compress the pack, and a solenoid magnet with two core-armatures one for each rock shaft for rocking the same when said last named solenoid magnet is energized.

4. In apparatus of the class described, a case having a chamber and an opening with a ground glass closure; a cover also having an opening with a glass cover, a pack of movable and perforated plates in said chamber, a support at the bottom of said chamber on which said plates rest, a set of solenoidal magnets mounted in the case above the plates, there being one solenoid for each plate, said solenoids having core-armatures with lift pins connected to their respective plates, means to hold the lifted plates in the pack against falling when their magnets become accidentally de-energized, and another perforated plate in the pack having slots through which the several lift pins pass so that any plate lifting magnet when energized will effect the lifting of said another perforated plate as well as its own plate.

5. In apparatus of the class described, a case having a chamber and an opening with a ground glass closure; a cover also having an opening with a glass cover, a pack of movable and perforated plates in said chamber, a support at the bottom of said chamber on which said plates rest, a set of solenoidal magnets mounted in the case above the plates, there being one solenoid for each plate, said solenoids having core-armatures with lift pins connected to their respective plates, means to hold the lifted plates in the pack against falling when their magnets become accidentally de-energized, said last named means comprising elements pressing the plates of the pack together and an electro-magnet means for releasing the pressing elements while a plate lifting magnet is energized, another perforated plate in the pack having slots through which the several lift pins pass so that any plate lifting magnet when energized will effect the lifting of said another perforated plate as well as its own plate.

6. In apparatus of the class described, a case having a chamber and an opening with a ground glass closure; a cover also having an opening with a glass cover, a pack of movable and perforated plates in said chamber, a support at the bottom of said chamber on which said plates rest, a set of solenoidal magnets mounted in the case above the plates, there being one solenoid for each plate, said solenoids having core-armatures with lift pins connected to their respective plates, means to hold the lifted plates in the pack against falling when their magnets become accidentally de-energized, said last named means comprising two rock shafts at the sides of the box chamber and having off-sets to engage the front plate of the pack, spring means to cause said off-sets to compress the pack, and a solenoid magnet with two core-armatures one for each rock shaft for rocking the same when said last named solenoid magnet is energized, and another perforated plate in the pack having slots through which the several lift pins pass so that any plate lifting magnet when energized will effect the lifting of said another perforated plate as well as its own plate.

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