

Feb. 4, 1930.

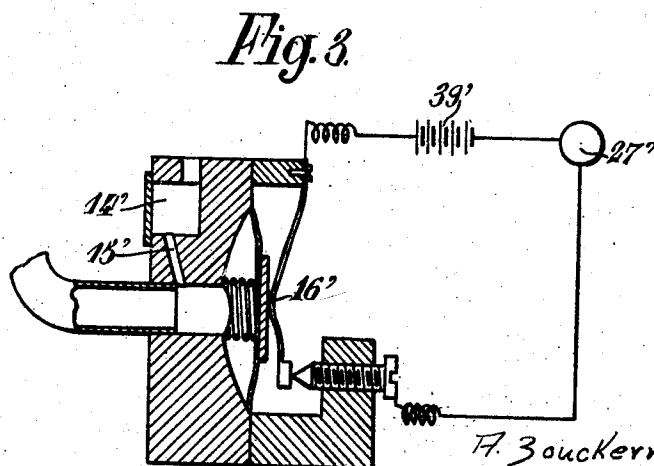
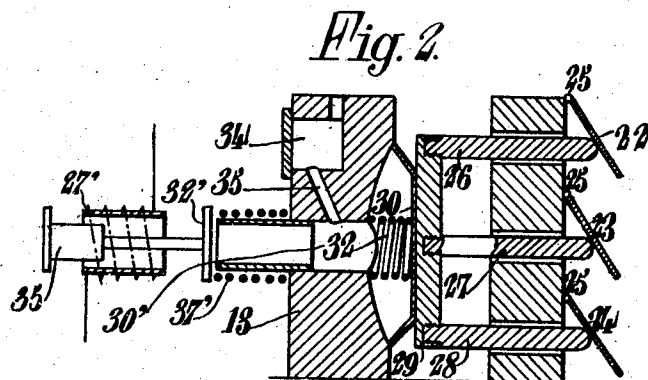
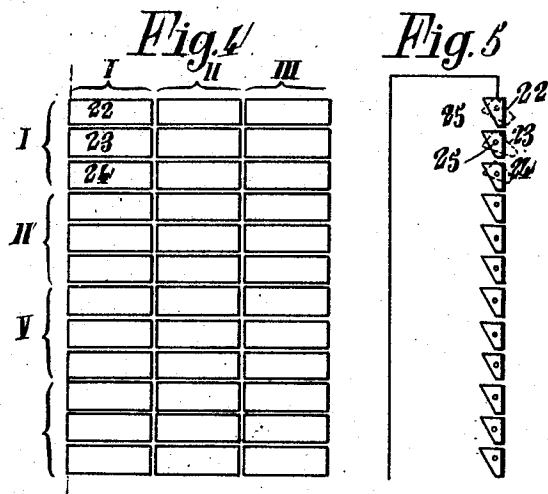
A. ZOUCKERMANN

1,746,394

ADVERTISING APPARATUS

Filed March 16, 1928

2 Sheets-Sheet 2



A. Zouckermann
INVENTOR

B. Marks & Co.
ATTY.

UNITED STATES PATENT OFFICE

ARMAND ZOUCKERMANN, OF ST.-GRATIEN, FRANCE

ADVERTISING APPARATUS

Application filed March 16, 1928, Serial No. 262,263, and in France May 31, 1926.

The present invention relates to advertising devices and to the control mechanism therefor.

According to the present invention one object is to off-set the advertising panel which receives juxtaposed elements, individually controllable at will in a manner to cause a change in position and cover or uncover an illuminated part or become detached from the panel according to whether they are controlled or not.

The elements above mentioned may be of any form desired. Their movement for uncovering and covering the illuminated part relative to each of them may likewise be brought about in accordance with various trajectories, that is, translation in any desired plane, rotation according to any desired axes or a combination of the two movements.

A device constructed according to the invention allows the advertising to be rendered visible in the daytime as well as at night. In fact, during the day, the elements uncovered may appear in a dark shade on a light background or inversely. During the night two means may be employed either for strongly lighting the panel from in front so that it functions in the same manner as during the day or for forming the parts, which are uncovered by manipulating the element, of transparent material illuminated at the rear of the panel.

Each of the movable elements may be extremely light so that their control is effected with a minimum expenditure of energy. Consequently, the elements may be as large as desired without the expenditure of energy being increased appreciably.

By means of the device according to the invention it is possible to trace a text or figures on a panel, giving the impression that the said text or figures are being displaced along the said panel, starting, for example, to the left the said text or figures may be displaced to the right and becoming obliterated at the right edge of the panel. Obviously the displacement might take place otherwise.

This phase of the invention includes in par-

ticular the new application to the actuation and control of the apparatus of the type indicated of pneumatic mechanisms which include a source of pressure or suction, receiving elements, such as membranes, bellows or cylinders and pistons, for example, and means for controlling the admission of the pressure or suction to one or more of the said receiving organs, the said means being constructed in any suitable manner, such as for example, a perforated table and a perforated band unwinding from one support and winding on another at a predetermined speed.

This phase of the invention furthermore includes the new application, to apparatus for advertising of the type indicated having pneumatic control or not, of oscillating mirrors of small dimensions movable separately but simultaneously under the action of a single controlling element, this arrangement having for a purpose to considerably reduce the inertia to be overcome and consequently allowing an appreciable improvement in the operation and also a decrease in the number of parts.

It is to be understood that the term "mirror" as hereinafter used includes all means of reflecting, refracting, deviating and differing light in a direction or directions other than the incident direction.

The invention further contemplates the new application of the pneumatic control means, above mentioned, to the control of electric circuits, each receiving element being capable of opening and closing a contact. The said electric circuits can either serve to light lamps or for operating suitable electromechanical relays.

Another feature of the invention consists in utilizing the said electromechanical relays for the control of receiving elements of the pneumatic type of high output which could not be controlled directly by the perforated tube. The said relays of the electromechanical type thus replace the pneumatic relays in current use, which can also thus be utilized in the present apparatus to advantage.

The invention will now be described in detail with reference to the accompanying drawing forming part of this specification and

illustrating several embodiments of the invention by way of example.

In the drawing:

Fig. 1 is a perspective view of the entire apparatus with partial sections.

Fig. 2 is a longitudinal section of a detail relating to the preceding figure.

Fig. 3 is a longitudinal section of a detail relating to Fig. 1.

Fig. 4 is a partial front view of a panel.

Fig. 5 is a side view corresponding to the preceding figure.

As shown in Figs. 1 and 4-5 each panel may comprise a series of a large number of oscillating elements such as mirrors or diffusing plates assembled in groups, the assemblage of said groups forming the panel. The mirrors of each group are movable separately, but simultaneously under the action of a single organ of control.

For example, each group I, II, III, IV, V of panel 1' may be formed of three mirrors 2', 3', 4' pivoted separately on a shaft 5' (Fig. 1).

The mirrors 2', 3' and 4' are separately, but simultaneously moved through the medium of push pieces 6', 7' and 8' rigidly secured to a pilot plate 9'. The displacements of the latter are function of the displacements of diaphragm 10' subjected, on the one hand, to the action of a spring 11' and, on the other hand, to the value of the pressure existing within a chamber 12 one of the walls of which is constituted by the diaphragm 10'. The chamber 12 which is partly provided in a member 14' communicates, with a partial vacuum chamber 14' also provided in the member 13' and throughout the length of the latter, through the medium of a capillary pipe line 15' and of a channel 30' terminated at its free end by a nozzle 31' controlled by an obturator 32', for the purpose, as explained later on, to put the chamber 12' in communication with the atmosphere or to isolate the said chamber from the atmosphere. The depression existing in the chamber 14' is obtained by a suction apparatus 33' connected to the said chamber by a pipe line 34', as shown in Fig. 1.

The obturator 32', which is connected to a core 35' of an electromagnet 27' through the medium of a rod 36' is subjected to the action of a spring 37' arranged as shown in the drawing, so that the obturator 32' is put in action when the electromagnet 27' is energized and is put out of action by a spring 37', when the electromagnet 27' is deenergized.

The circuit of the electromagnet 27', which is controlled by a switch 32', can be traced as follows: source 39', wire 40', resiliently distortable blade 26' of the switch 38', contact screw 41' of the switch 38', wire 42', electromagnet 26', wire 43', wire 44', wire 45', source 39'. The operation of the switch 38' is ef-

fected automatically through the medium of a device similar to that ensuring the angular displacements of the mirrors 2', 3' and 4' which are pivoted about axes 5'.

The device automatically ensuring the operation of the switch 26' is constituted by a member 13' having:

(a) a chamber 12' one of the walls of which is constituted by a diaphragm 10' subjected to the action of a spring 11'.

(b) a conduit 14' which is put in communication with the chamber 12' by a capillary channel 15' and by a pipe line 30' terminated, at its free end, by a nozzle 31'.

(c) a suction apparatus 33' allowing, through the medium of a tube 34' creating in the conduit 14' a suitable partial vacuum.

On the member 13' are mounted members 46' and 47' supporting, the first, through the medium of a screw 48', the resilient contact blade 26' and the second, the contact screw 41'.

The nozzle 31' is connected, by a tube 17' to one of the ports 49' of a perforated plate 16'. The latter has a suitable number of ports 49^a connected by pipe lines 17' to devices, similar to those previously described, which each control a group of mirrors such as I, II and III. The ports of the perforated pipe are controlled by a strip 18' having perforations 18^a suitably arranged so as to constitute letters for instance.

The strip 18', which moves in translation opposite the perforated plate 16', is wound on drums 51' and 52'. The drum 52' which is a driving drum, is angularly driven, at a suitable speed, by a suitable motor such as an electric motor 53'. A speed reducing device, not shown in the drawing, is preferably interposed, between the motor 53' and the drum 52'.

The operation of the device previously described is as follows:

The strip 18' which is driven at a suitable speed, moves opposite the perforated pipe and controls the perforations 49^a formed in the latter, so that the chambers 12' are, at the suitable moment, put in communication with the atmosphere, in view of ensuring the control of the switches 41' controlling the circuits of the electromagnets 27'. These latter ensure the displacements of the mirrors, which, according to their positions, are visible or not.

This device allows texts to appear which texts move on the panel carrying the mirrors.

It is obvious that the mirrors of the panel can be controlled at a distance, owing to the electric circuit interposed between the said mirrors and the perforated pipe.

In case the panel carrying the mirrors is arranged near the perforated pipe, the intermediate device constituted by the switches 38' and the electromagnets 27 can be dispensed with. The tubes 17' are then directly

connected to the nozzles 31' and the springs 11' operate in this case as tension springs.

The mirrors or other elements are displaced only at a small angle but this displacement is sufficient to render more or less visible the mirror or other element because in one of the positions it reflects towards the observer more light than in the other position which is sufficient for clearly showing the desired signs on the panel.

Having thus described my invention what I claim as new and desire to secure by Letters Patent is:

1. In an advertising device of the type described, the combination of an advertising panel, a plurality of regularly disposed mirrors pivotally mounted on said panel and means for moving said mirrors separately but simultaneously for rendering certain portions of said panel visible at will in order to form the indicia desired to be displayed thereupon.

2. In an advertising device of the type described, the combination of an advertising panel, a plurality of regularly disposed mirrors pivotally mounted on said panel, means for moving said mirrors separately but simultaneously for rendering certain portions of said panel visible at will in order to form the indicia desired to be displayed thereupon, and pneumatic control means for automatically operating said first mentioned means for the purpose disclosed.

3. In an advertising device of the type described, the combination of an advertising panel, a plurality of regularly disposed mirrors pivotally mounted on said panel, means for moving said mirrors separately but simultaneously responsive to a change in pressure in the operating fluid supplied thereto, and control means for said operating fluid including a distributing pipe, a perforated band displaceable over said pipe whose perforations correspond to the indicia which it is desired to be displayed and means for supplying said first mentioned means with said operating fluid through said distributing pipe and band for the purpose disclosed.

4. In an advertising device of the type described, the combination of an advertising panel, a plurality of regularly disposed means for rendering only certain portions of said panel visible and pattern-sheet controlled pneumatic means for automatically operating said regularly disposed means to form the indicia desired to be displayed on said panel.

5. In an advertising device of the type described, the combination of an advertising panel, a plurality of regularly disposed displaceable means for rendering only certain portions of said panel visible and pattern-sheet controlled pneumatic means for automatically operating said regularly disposed

means to form the indicia desired to be displayed on said panel.

6. In an advertising device of the type described, the combination of an advertising panel, a plurality of regularly disposed rotatively displaceable means for rendering only certain portions of said panel visible and pattern-sheet controlled pneumatic means for automatically operating said regularly disposed means to form the indicia desired to be displayed on said panel.

7. In an advertising device of the type described, the combination of an advertising panel, means for illuminating a portion of said panel, a plurality of regularly disposed means associated with but independent of said illuminating means for rendering only certain portions of said panel visible at will in order to form the indicia desired to be displayed, electro-mechanical means for controlling said regularly disposed means, an electric circuit for said electro-mechanical means and pattern-sheet controlled pneumatic means for automatically controlling said circuit to form the indicia desired to be displayed on said panel.

8. In an advertising device of the type described, the combination of an advertising panel, a plurality of regularly disposed mirrors movably mounted on said panel and means for moving said mirrors separately but simultaneously for rendering certain portions of said panel visible at will in order to form the indicia desired to be displayed thereupon.

9. In an advertising device of the type described, the combination of an advertising panel, a plurality of regularly disposed means for rendering only certain portions of said panel visible at will in order to form the indicia desired to be displayed, pneumatic means for actuating said regularly disposed means, electro-mechanical means for controlling the said pneumatic means, electric circuits for said electro-mechanical means and pattern-sheet controlled pneumatic means for automatically controlling said circuits from the indicia to be displayed on said panel.

In testimony whereof I have signed my name to this specification.

ARMAND ZOUCKERMANN.