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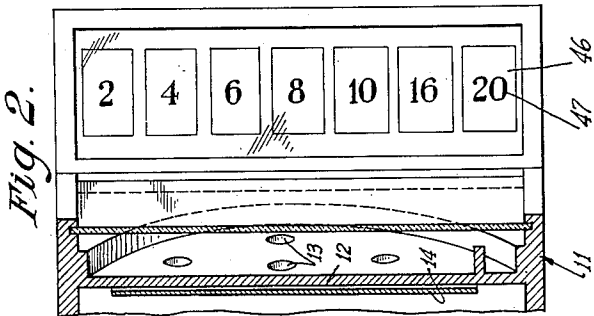
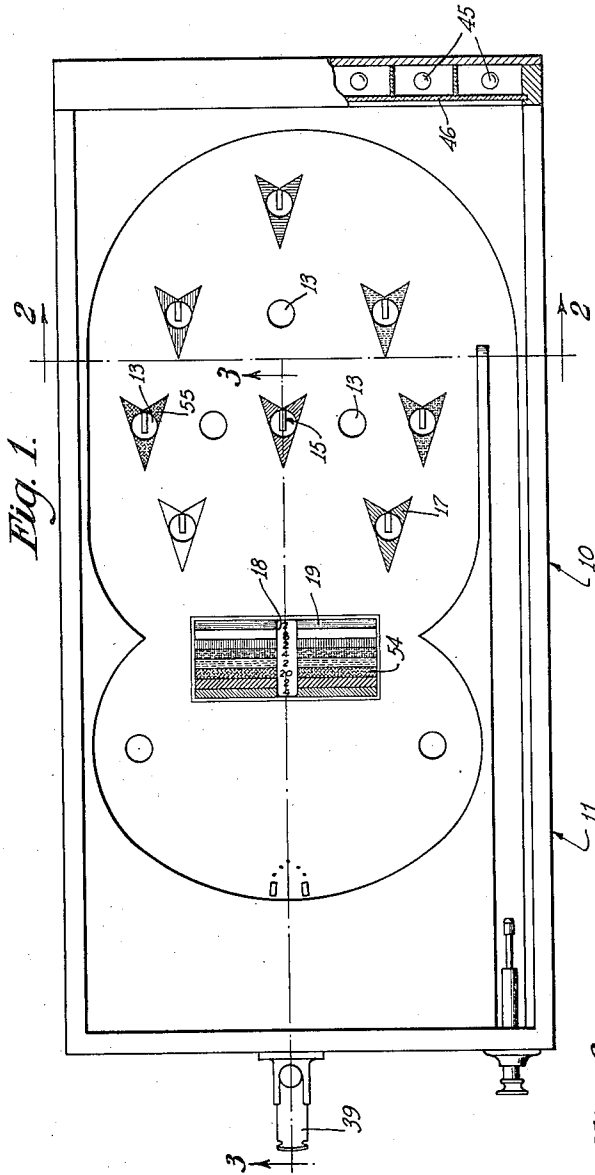
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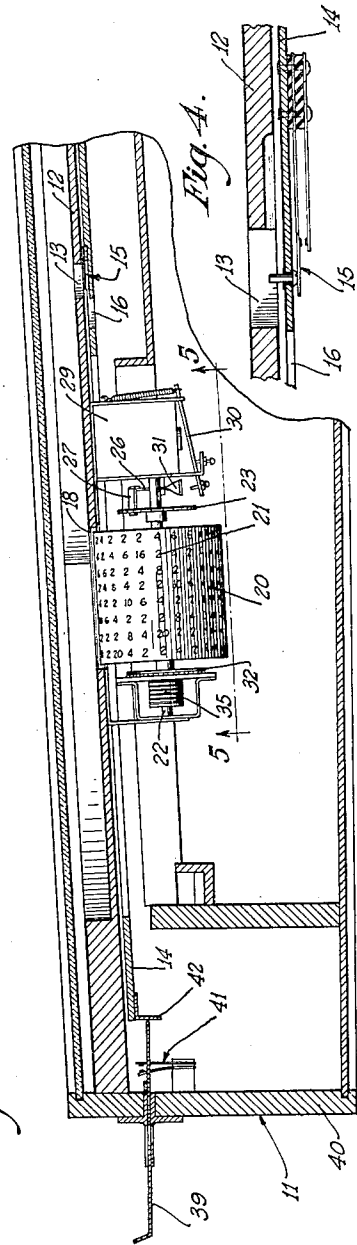
GAME APPARATUS

Filed Nov. 15, 1935

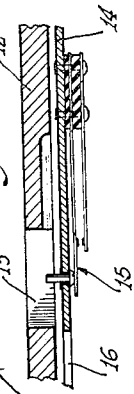
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*Fig. 3.*



*Fig. 4.*



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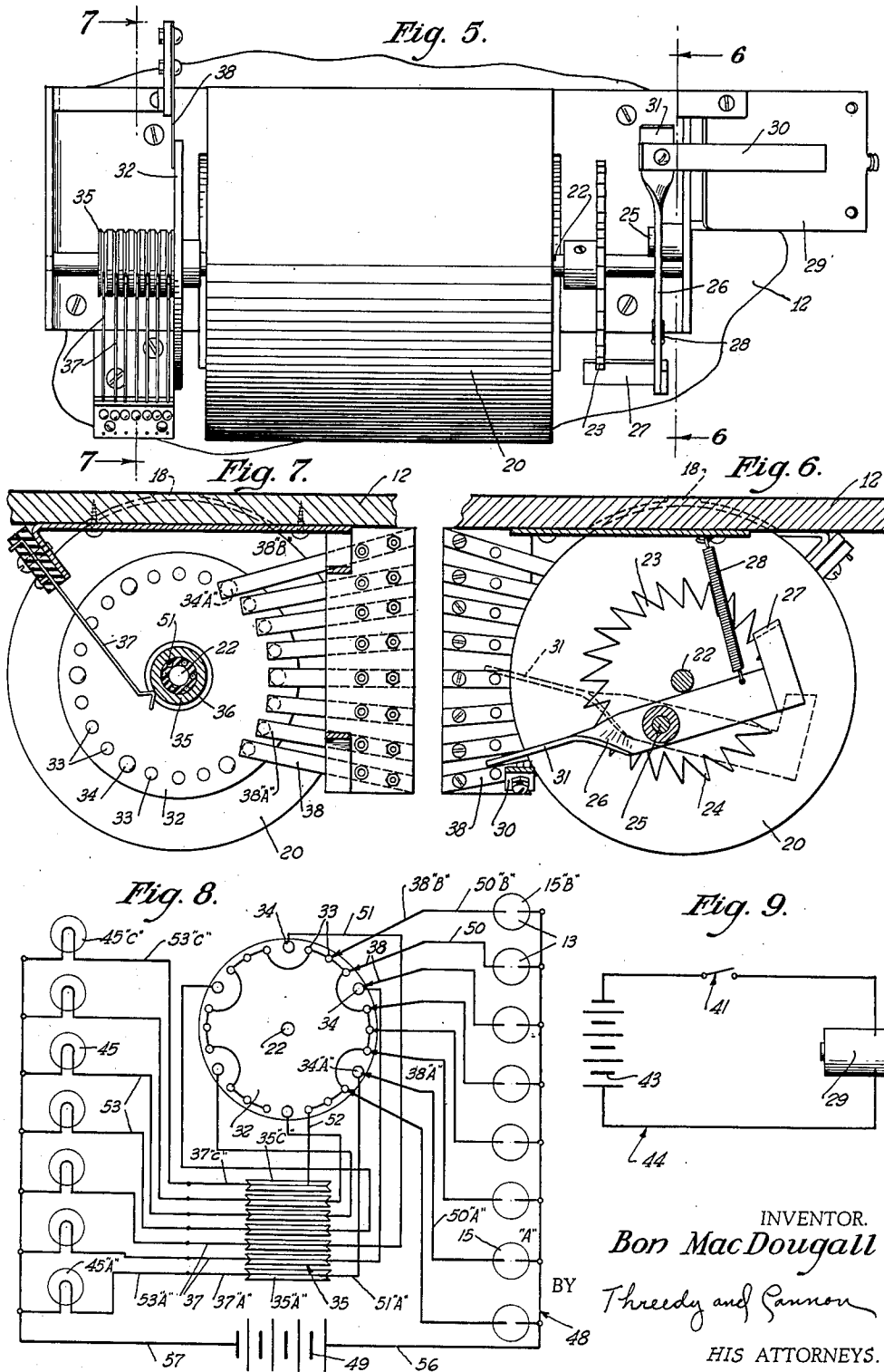
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## UNITED STATES PATENT OFFICE

2,029,177

## GAME APPARATUS

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Application November 15, 1935, Serial No. 49,909

4 Claims. (Cl. 273—121)

This invention relates to game apparatuses.

It is an object of this invention to provide an improved game apparatus which is relatively simple and inexpensive in construction and efficient in use.

Another object of the present invention is to provide in a game apparatus of the so-called pin and marble game type, a novel device for changing the effective or scoring values of the various ball-receiving pockets or exit openings formed in the playing surface.

A further object of the present invention is to provide a novel control device, adapted to be associated with a score-indicating instrumentality, or a plurality of the same, in a game apparatus of the pin and marble game type, and by means of which the effective scoring value of a ball lodging in one of the pockets provided on the playing surface of the said apparatus may be controlled and varied rather than remaining constant or fixed as in pin and marble games heretofore made.

Other objects will appear hereinafter.

The invention consists in the novel combination and arrangement of parts to be hereinafter described and claimed.

The invention will be best understood by reference to the accompanying drawings showing the preferred form of construction, and in which:

Fig. 1 is a top plan view, partly in section, of a game apparatus of the so-called pin and marble game type, embodying a preferred form of the present invention;

Fig. 2 is a transverse sectional view, on line 2—2 in Fig. 1;

Fig. 3 is a central longitudinal sectional view on line 3—3 in Fig. 1, showing the new control device or so-called score changer;

Fig. 4 is a sectional detail view of one of the ball-receiving pockets and switches;

Fig. 5 is a bottom plan view of the new control device, on line 5—5 in Fig. 3;

Fig. 6 is a sectional view on line 6—6 in Fig. 5;

Fig. 7 is a sectional view on line 7—7 in Fig. 5;

Fig. 8 is a diagrammatic view of the principal electrical circuit embodied in the invention; and

Fig. 9 is likewise a diagrammatic view of an auxiliary electrical circuit embodied in the invention.

A game apparatus of the so-called pin and marble game type, embodying a preferred form of the present invention, is shown in the drawings, is therein generally indicated at 10, and comprises a cabinet 11 which includes an in-

clined playing board 12 which has ball-receiving exit openings or pockets 13 formed therein. Slidably mounted in the cabinet 11, below the inclined playing board 12, is a ball-retaining member 14 which is provided with ball exit openings 16 and these ball exit openings 16 are adapted to be registered with the ball exit openings or pockets 13 by movement of the ball-retaining member 14. Carried by the slidable ball-retaining member 14, and normally arranged below the pockets 13, are switches 15 (Figs. 3 and 4).

Provided on the inclined playing board 12, adjacent each of the pockets 13, is a colored marginal edge or border 17 (Fig. 1). Formed in the inclined playing board 12 is a sight opening 18 and provided on the inclined playing board 12, adjacent the sight opening 18, is a series of variously colored parallel strips 19, each of which corresponds, in color, to one of the colored marginal edges or borders 17 of the pockets 13, for a purpose to be explained hereinafter.

Rotatably mounted in the cabinet 11, below the inclined playing board 12, is a drum or dial 20, and provided on the peripheral surface of this drum 20 are parallel rows of numerals 21 (Fig. 3), these rows of numerals 21 being visible, one at a time, through the sight opening 18 (Fig. 1).

The drum 20 is mounted on a horizontal shaft 22 and likewise carried by, that is, fixed on, this shaft 22 is a ratchet 23 which includes teeth 24 (Fig. 6).

Pivotally mounted, as at 25, in the cabinet 11, adjacent the ratchet 23, is a pawl 26 and this pawl 26 has an angled end portion or arm 27 which is engageable with the teeth 24 of the ratchet 23, the pawl 26 being normally urged, by a spring 28, into the position in which it is shown in full lines, Fig. 6.

Mounted in the cabinet 11, adjacent the drum 20, (Fig. 3) is an electromagnet 29 and this electromagnet 29 includes a movable element or armature 30 which is engageable with an end portion 31 of the pawl 26.

Carried by the shaft 22, on which the drum 20 is mounted, is a disc 32, and mounted on this disc 32 is a circumferentially arranged row of contacts 33 and 34, the contacts 34 being arranged at intervals between or relative to the contacts 33 (Fig. 7). These movable contacts 33 and 34 are successively engageable with a series of spaced and relatively stationary contacts or brushes 38, by movement of the disc 32, as will be explained presently.

Mounted on the shaft 22, adjacent the drum 20, is a series of electrically insulated and spaced

rings 35, each of which has an annular groove formed in its peripheral surface, and projecting into and working in each of these grooves 36 is a wiping contact or brush 37.

Slidably mounted in the end wall 40 of the cabinet 11 is an actuating member or coin slide 39 and the inner end of the coin slide 39 is engageable with an arm 42 which is attached to, and depends from, the slidable ball-retaining member 14 (Fig. 3).

Associated with and operated by the coin slide 39 is a conventional so-called full stroke switch 41 and this full stroke switch 41 is arranged, together with the electromagnet 29, and a suitable source of current 43, such as a battery of dry cells or the like arranged in the cabinet 11, in an electrical circuit 44 (Fig. 9).

Mounted in the cabinet, at a suitable point therein, and preferably at the head or upper end of the same, is a bank or group of score-indicating instrumentalities which are shown as having the form of lights 45 and arranged in front of each of these lights 45 is a transparent plate 46 on which is provided a suitable score-indicating indicium 47 (Fig. 2).

The score-indicating devices or lights 45 are arranged in an electrical circuit, generally indicated at 48 (Fig. 8), and which includes, in addition to the score-indicating devices or lights 45, the switches 15, a suitable source of current, such as a battery of dry cells or the like 49 arranged in the cabinet 11, and the score-changing or control device which includes the commutator 32—33—34—38—36—37 and associated parts.

The circuit 48 also includes a group of conductors 50, which lead from the switches 15 to the stationary contacts 38, and a group of conductors 51 which lead from the contacts 34 to the conductive rings 35 (Figs. 7 and 8). Likewise embodied in the circuit 48 is a conductor 52 which electrically connects all of the contacts 33 with one of the conductive rings 35.

Also embodied in the circuit 48 is a group of conductors 53 which lead from the brushes 37 to the score-indicating devices or lights 45 (Fig. 8).

#### Operation

When the coin slide 39 is pushed in (left to right, Fig. 3) the inner end of the same engages the depending arm 42 of the slidable ball-retaining member 14, thereby moving the latter (left to right, Fig. 3) into ball-releasing position. This movement of the coin slide 39 causes the same to close the full stroke switch 41, thereby closing the circuit 44 and energizing the electromagnet 29 which is arranged therein. When the electromagnet 29 is thus energized it attracts its movable element or armature 30, and when the movable element or armature 30 is thus attracted, by its electromagnet 29, it engages the end portion 31 of the pawl 26 and thereby pivots the latter, at 25, (clockwise from full to dotted line position, Fig. 6). When the pawl 26 is thus pivoted (from full to dotted line position, Fig. 6) its angled end portion or arm 27 engages the teeth 24 of the ratchet 23, and when the pawl 26—31 reaches the position in which it is shown in dotted lines in Fig. 6, the angled end portion or arm 27 thereof passes out of engagement with the teeth 24 of the ratchet 23, whereupon the ratchet 23, shaft 22, drum 20, disc 32, and rings 35, are caused to rotate (clockwise, Fig. 6).

When the coin slide 29 is returned to its initial position the switch 41 is opened, thereby opening the circuit 44 and deenergizing the electromagnet

29, whereupon the resetting spring 28 will urge the pawl 26—31 back into its initial position (as in full lines, Fig. 6). During this operation, the angled end portion or arm 27 of the pawl 26 reengages the teeth 24 of the ratchet 23, thereby stopping the rotation of the ratchet 23—24 and the drum 20. When the drum 20 is thus stopped one of the rows of numerals 21 thereon will be visible through the sight opening 18, as shown in Fig. 1.

Thus, assuming for the purpose of illustration, that the drum 20 comes to rest with the particular row of numerals 21 visible thereon which is shown in Fig. 1, by reference to which it will be noted that the highest numeral in the row of numerals which is visible in the sight openings 18 (Fig. 1) is the numeral 20, it being noted that this numeral 20 is disposed in alignment and registration with the orange-colored stripe 54. The arrangement of the several elements in the circuit 48 is such that when the parts are disposed as in Fig. 1, that is, when the numeral 20 is disposed in alignment with the orange stripe 54, the player may then, by playing a ball into that particular pocket 13 which is surrounded by an orange colored marginal edge or border, as indicated at 55, (Fig. 1), illuminate the particular score-indicating light 45 which has a scoring value of 20, (Fig. 2), it being noted that current will then flow through the circuit 48 as follows: from one side of the current source 49, by way of the conductor 56, into the particular switch 15 which is associated with the pocket 13 having the orange-colored border 55 (Fig. 1), said switch being designated 15A, (Fig. 8) thence by way of the corresponding conductor 50A, stationary contact 38A, into the contact 34A, disc 32, conductor 51A, conductive ring 35A, brush 37A, conductor 53A, into the score-indicating light 45A, which has a scoring value of 20, and thence by way of the conductor 57 back to the source of current 49. In this manner the score-indicating light or score-registering device 45A, which has a score value of 20, will be actuated or illuminated when, in the present example, (the parts being disposed as in Fig. 1), the player succeeds in playing a ball into the particular pocket 13 which has the orange-colored border 55 (Fig. 1).

However, the several elements in the circuit 48 are so arranged that when the coin slide 39 is again operated the said pocket 13 which has the orange-colored border 55 (Fig. 1), and which had a scoring value of 20, in the foregoing example, will not again be likely to have the same score value, when the device is again operated, as will now be explained:

When the coin slide 39 is again operated, to rotate the drum 20, through the medium of the electro-magnet 29—30, pawl 26—31, and ratchet 23, the drum 20, and the disc 32 and contacts 33—34 carried thereby will, in all probability, come to rest in different relative positions than those they occupy in Figs. 1 and 8.

Thus, assuming that the parts are disposed as in the foregoing example, that is, as in Figs. 1 and 8 and that the drum 20, disc 32 and commutator rings 35—36 are again operated: In this event the disc 32 may, for example, come to rest in such a position that the contact 34A which was, in the foregoing example, disposed in engagement with stationary contact 38A (Fig. 8) is now disposed in engagement with the stationary contact 38B (Figs. 7 and 8). In this event the particular ball-receiving pocket 13 which is asso-

ciated with the switch 15B (Fig. 8) will now have a score value of twenty, and when a ball is played into the said pocket 13 which is associated with the switch 15B, current will then flow as follows: From the source of current 49, through the conductor 56, through the switch 15B, through the corresponding conductor 59B, and brush 38B, through the contact 34A (which is at this time disposed in engagement with the stationary contact 38B), through the conductor 51A, through the contact ring 35A, then by way of the brush 37A and conductor 53A to the score-indicating light 45A, which has a score value of twenty, and thence by way of the conductor 57 back to the current source 49.

It will therefore be noted that the scoring value of the pocket 13, which has the orange colored border 55, Fig. 1, and with which the switch 15A is associated is now two, rather than twenty, as in the previous example, since the stationary contact 38A, which is associated with the switch 15A, is no longer disposed in engagement with the contact 34A, but is now disposed in engagement with one of the contacts 33, all of which contacts 33 are connected, by the conductor 52, to the contact ring 35C, whereupon current will flow as follows:

From the current source 49, by way of conductor 56, through the closed switch 15A, through the contact 38A and the particular contact 33 which is disposed in engagement therewith, then by way of conductor 52, into the contact ring 35C, into the brush 37C, and conductor 53C, then into the light 45C, this light 45C being disposed behind the particular plate 46 which has a scoring value of 2 (Fig. 2), and thence by way of the conductor 57 back to the current source 49, thereby illuminating the light 45C which has a scoring value of two, it being noted that this light 45C, which has a scoring value of two, is in this present example illuminated by a ball disposed in the same pocket 13, (indicated at 55, Fig. 1) which, in the previous example, had a scoring value of twenty.

It will thus be seen that operation of the present control device, that is, the movement of the disc 32 and the movable contacts 33 and 34 carried thereby, relative to the stationary contacts 38, does not change the scoring value of the score-indicating or registering lamps 45, but merely varies or changes the scoring value of the ball-receiving pockets 13 and associated switches 15, that is, the movement of the disc 32 and the contacts 33 and 34 carried thereby, relative to the stationary contacts 38, determines which one of the switches 15 will illuminate a pre-selected one of the score-indicating lights 45.

While I have illustrated and described the preferred form of construction for carrying my invention into effect, this is capable of variation and modification, without departing from the spirit of the invention. I, therefore, do not wish to be limited to the precise details of construction set forth, but desire to avail myself of such variations and modifications as come within the scope of the appended claims.

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

1. A score control device for an amusement apparatus of the type which includes a cabinet having a member providing a ball-playing surface

provided with ball-receiving pockets, said core control device comprising score-indicating means, a plurality of electrical circuits for operating said score-indicating means and each of said circuits including a switch closed by the action of a ball entering one of said pockets, each of said circuits also including a stationary contact and a movable contact and the latter being movable successively into engagement with said stationary contacts, and means for moving the said movable contacts successively into engagement with the said stationary contacts to change, by chance, the relative positions between the said stationary and movable contacts.

2. A score control device for an amusement apparatus of the type which includes a cabinet having a member providing a ball-playing surface provided with ball-receiving pockets, said score control device comprising score-indicating means, a plurality of electrical circuits for operating said score-indicating means and each of said circuits including a switch closed by the action of a ball entering one of said pockets, each of said circuits also including a stationary contact and a movable contact and the latter being movable successively into engagement with said stationary contacts, and means including an electro-magnetic device for moving the said movable contacts successively into engagement with the said stationary contacts to change, by chance, the relative positions between the said stationary and movable contacts.

3. A score control device for an amusement apparatus of the type which includes a cabinet having a member providing a ball-playing surface provided with ball-receiving pockets, said score control device comprising score-indicating means, a plurality of electrical circuits for operating said score-indicating means and each of said circuits including a switch closed by the action of a ball entering one of said pockets, each of said circuits also including a stationary contact, said score control device including a movable contact and the latter being movable successively into engagement with said stationary contacts, and means, including an electro-magnetic device, for moving the said movable contact successively into engagement with the said stationary contacts to change, by chance, the relative positions between the said stationary contacts and the said movable contacts.

4. A score control device for an amusement apparatus of the type which includes a cabinet having a member providing a ball-playing surface provided with ball-receiving pockets, said score control device comprising score-indicating means, a plurality of electrical circuits for operating said score-indicating means and each of said circuits including a switch closed by the action of a ball entering one of said pockets, each of said circuits also including a stationary contact, said score control device including a movable contact and the latter being movable successively into engagement with said stationary contacts, and means, including an electro-magnetic device, for moving the said movable contact successively into engagement with the said stationary contacts to change, by chance, the relative positions between the said stationary and movable contacts, said second-named means including a switch for operating the said electro-magnetic device.

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