

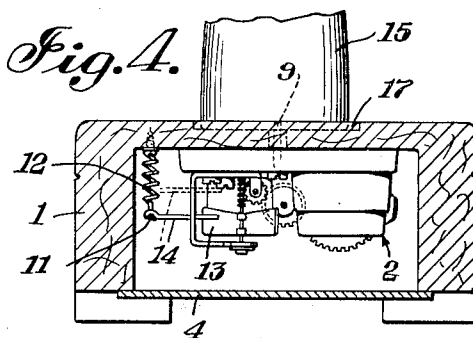
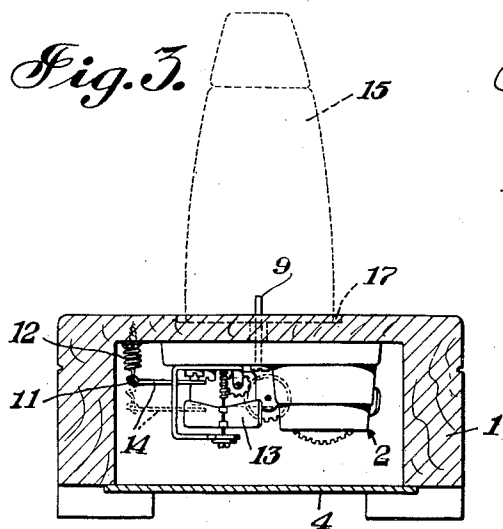
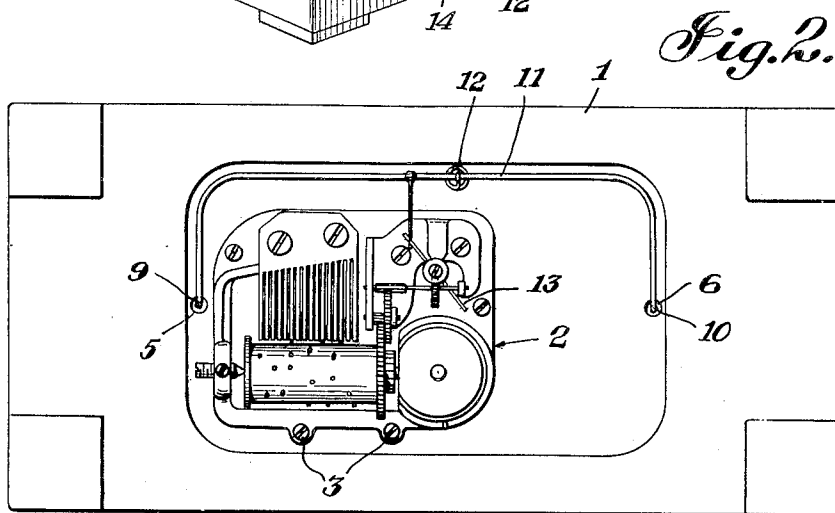
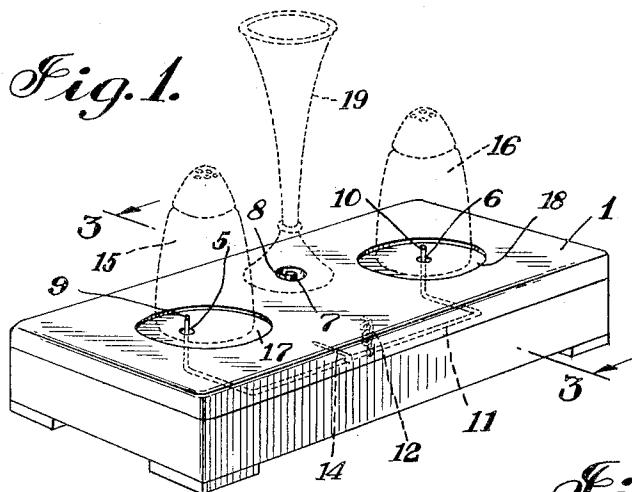
Jan. 17, 1950

F. M. GRUNICKE ET AL
MULTICONTROL FOR MECHANICAL MUSICAL
INSTRUMENTS OR THE LIKE

2,494,656

Filed Feb. 18, 1947

4 Sheets-Sheet 1



INVENTORS
FREDERICK M. GRUNICKE
JOHANNES H. RAUSCHENBACH
BY *Amalgam*
Agent

Jan. 17, 1950

F. M. GRUNICKE ET AL
MULTICONTROL FOR MECHANICAL MUSICAL
INSTRUMENTS OR THE LIKE

2,494,656

Filed Feb. 18, 1947

4 Sheets-Sheet 2

Fig. 5.

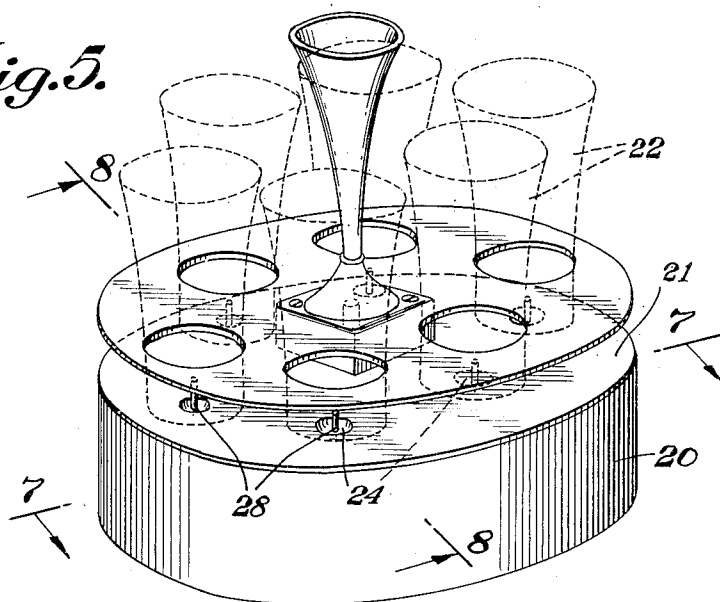
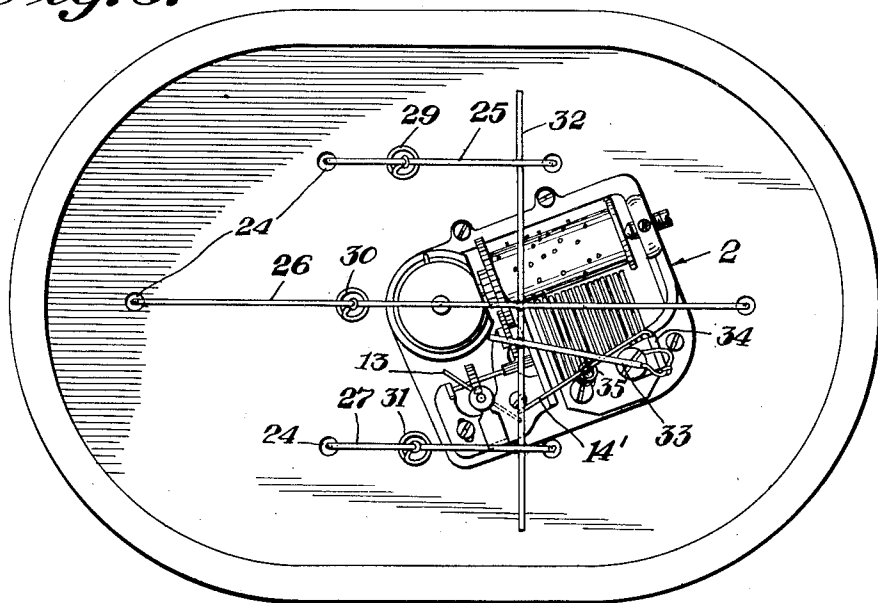


Fig. 6.



INVENTORS
FREDERICK M. GRUNICKE
JOHANNES H. RAUSCHENBACH
BY *Emory Montague*
Agent

Jan. 17, 1950

F. M. GRUNICKE ET AL
MULTICONTROL FOR MECHANICAL MUSICAL
INSTRUMENTS OR THE LIKE

2,494,656

Filed Feb. 18, 1947

4 Sheets-Sheet 3

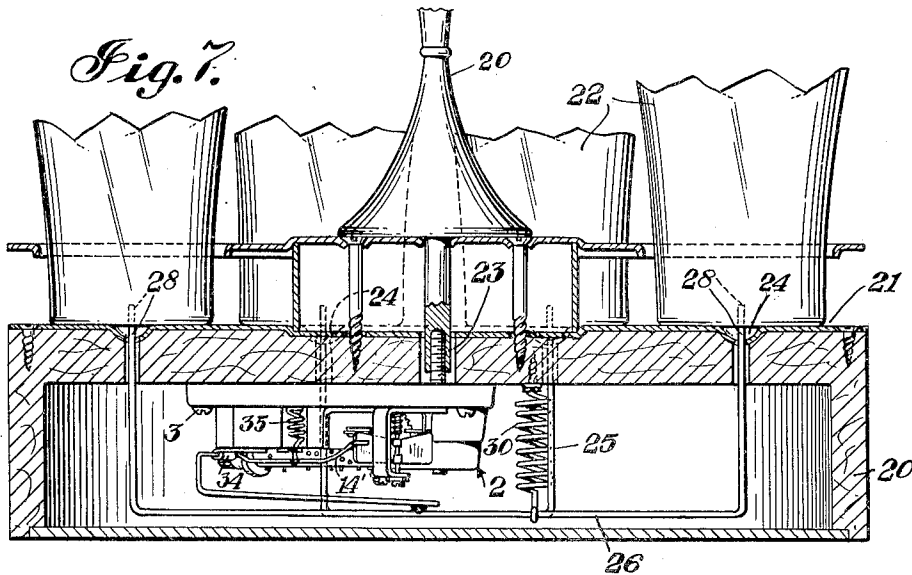
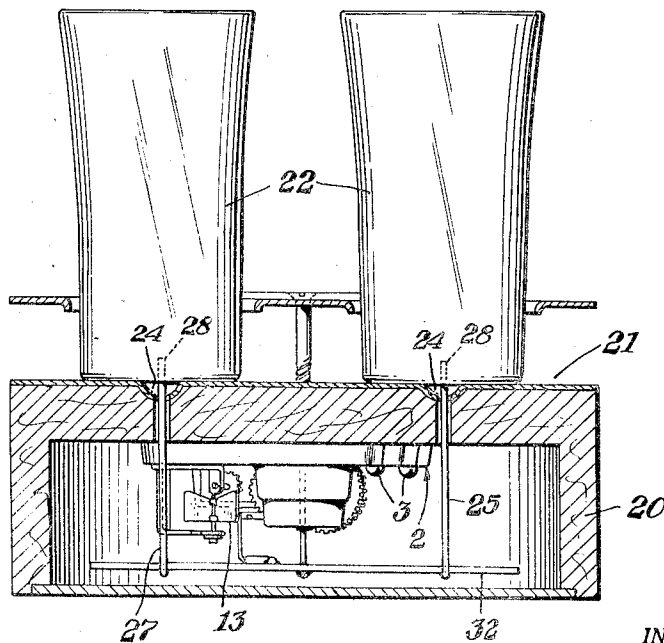


Fig. 8.



INVENTORS
FREDERICK M. GRUNICKE
JOHANNES H. RAUSCHENBACH
BY *Frederick M. Grunicke*
Agent

Jan. 17, 1950

F. M. GRUNICKE ET AL
MULTICONTROL FOR MECHANICAL MUSICAL
INSTRUMENTS OR THE LIKE

2,494,656

Filed Feb. 18, 1947

4 Sheets-Sheet 4

Fig. 10.

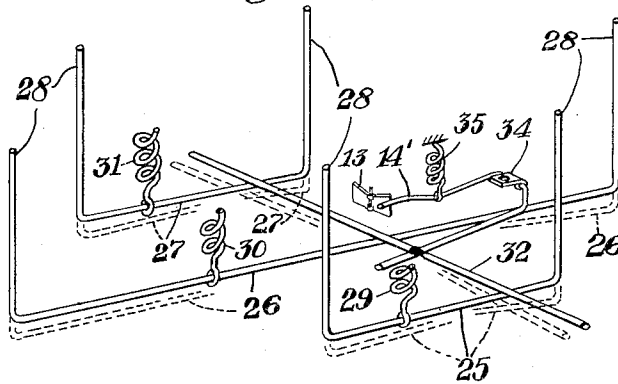
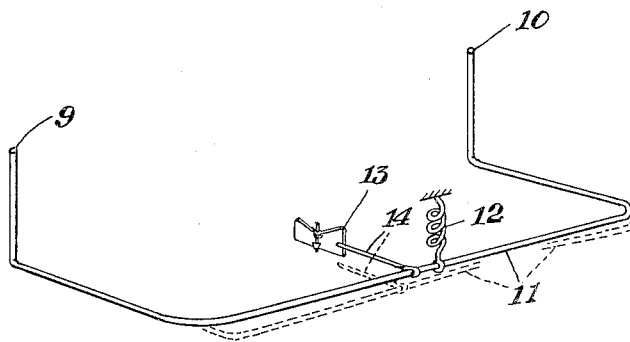


Fig. 9.



INVENTORS
FREDERICK M. GRUNICKE
JOHANNES H. RAUSCHENBACH
BY *Rauschenbach*
Agent

UNITED STATES PATENT OFFICE

2,494,656

MULTICONTROL FOR MECHANICAL MUSICAL INSTRUMENTS OR THE LIKE

Frederick M. Grunicke, Maspeth, and Johannes
H. Rauschenbach, New York, N. Y.

Application February 18, 1947, Serial No. 729,390

6 Claims. (Cl. 74-479)

1

The present invention relates to a multi-control for mechanical musical instruments or the like.

Although the present invention is designed to provide at least two or more controls for any mechanical moving mechanism, in particular the present invention is demonstrated in connection with a mechanical musical instrument without limitation to this application.

Mechanical musical instruments are known in the prior art and comprise substantially a prime mover, such as a spring motor, which drives a cylinder having prongs thereon adapted to engage and vibrate the fingers of a tuned steel comb to produce musical notes. The movement further includes a governor utilized to control the speed of the motor and driven by a train of gearing. It is also known to provide a control mechanism for the governor, which usually comprises an element moving in and out of the path of the blades of the governor and thus blocking the operation of the instrument and permitting the instrument to operate under the influence of the spring motor, respectively. Hence the control of the instrument can be achieved from one point only, as by moving of one lever or by similar means.

It is the main object of the present invention to provide an element for the control of a mechanical moving mechanism which can be operated independently on at least two different locations.

It is another object of the present invention to provide a control element for a mechanical moving mechanism, and means for operating the element, which means have at least two locations, each of which is adapted to respond to weight in order to start or stop the mechanical moving mechanism.

It is still another object of the present invention to provide one or more floating bridges which are in direct or indirect connection with a control element for a mechanical moving mechanism and which start or stop the mechanism from either bridge arm or from, either bridge, by removing or putting on weight to any bridge arm.

With these and any other objects which will become apparent from the following detailed description, the present invention will be clearly understood in connection with the accompanying drawings, in which:

Figure 1 is a perspective view of a musical instrument in connection with a salt and pepper shaker;

Fig. 2 is a bottom plan view of the instrument shown in Fig. 1;

2

Fig. 3 is a sectional view along the lines 3-3 of Fig. 1;

Fig. 4 is a sectional view as shown in Fig. 3, however the floating bridge is in a movement blocking position;

Fig. 5 is a perspective view of a musical instrument in connection with a liquor glass tray;

Fig. 6 is a bottom plan view of the instrument shown in Fig. 5;

Fig. 7 is a sectional elevation along the lines 7-7 of Fig. 5;

Fig. 8 is a sectional elevation along the lines 8-8 of Fig. 5;

Fig. 9 is a perspective schematic view of the control device, as applied in the instrument shown in Fig. 2; and

Fig. 10 is a perspective schematic view as applied in the instrument shown in Fig. 6.

Referring now to the drawings and particularly to Figs. 1-4 and 9, a dual control is shown in application for a salt and pepper shaker, though this application is by example only and could be a toy or any other device.

The shaker comprises a hollow box 1 in which a conventional mechanical musical instrument 2 is secured by screws 3 or the like. A cover plate 4 is provided at the bottom of the box 1 thereby covering the hollow space of the box 1. Three openings 5, 6 and 7 extend from the hollow space of the box 1 to its upper surface. The opening 7 is adapted to receive the winding shaft 8 and the openings 5 and 6 serve the purpose to receive the vertically extending ends 9 and 10 of a preferably U-shaped bracket 11 which is fastened loosely or rigidly to a spring 12, a rubber band or similar member.

The mechanical musical instrument comprises in usual manner a governor 13 and an extension 14 of the U-shaped bracket 11 is so arranged that it moves into the path of the governor 13 upon lowering any one of the ends 9 and 10 of the bracket into their respective openings 5 and 6 against the force of the spring 12 and thereby stopping the operation of the musical instrument 2. It is of course possible to arrange the extension 14 in such a way that it moves out of the path of the governor 13 upon lowering any one of the ends 9 and 10, thereby starting the operation of the musical instrument 2. Fig. 3 shows the extension out of the path of the governor 13, whereas Fig. 4 discloses the position with one or both ends 9 and 10 of the bracket 11 lowered and the extension 14 in the path of the governor 13. In the particular example disclosed in Figs. 1-4 a salt and a pepper shaker 15 and 16 are used for

3

lowering the ends 9 and 10 of the bracket 11 by means of the weight of the former and which are positioned preferably in recesses 17 and 18, provided on the top face of the box 1. A winder 19 of any shape, which also can serve some utility purpose, is screwed to the winding shaft 8.

The operation takes place in the following manner: If any one or both of the shakers 15 and 16 are lifted, the spring 12 will raise each of the ends 9 and 10, from which the shaker has been lifted. The bracket 11 will then partly or entirely, yet the extension 14 always, be lifted from the position shown in Fig. 4 to the position shown in Fig. 3. When the shaker or shakers are put down again the extension 14 moves again into the path of the governor 13 and the operation of the musical instrument 2 discontinued.

Though it is preferred to use the governor for stopping the movement of the musical instrument, any other moving element of the instrument or the mechanical movement to be controlled by the inventive device can be used for starting and stopping the movement.

Referring now to Figs. 5-8 and 10 of the drawings, a second embodiment of the invention is disclosed in connection with a multi-control of the mechanical movement as applied to a liquor glass tray. This embodiment is designed to start or stop a mechanism or a series of mechanical operations from any one of a series of points, by removing any one of a series of weights or equivalent means and stopping or starting said mechanism by replacing all of said series of weights.

The multi-control device is based on the same principle as the dual-control shown in Figs. 1-4, namely by using a floating bridge, which, regardless which one of the two weights is lifted, operates the movement.

Using the same principle for a multi-control device, a plurality of floating bridges depending upon the number of operating points are provided which work on one single master control rod which as described later stops the movement of the governor of the musical instrument. Though this embodiment is also shown in connection with a mechanical musical instrument, it is understood, that it can be used with any mechanical movement.

The present embodiment comprises a box 20, the hollow space of which receives a musical instrument 2 which is fastened to the box 20 by screws 3. The top of the box 20 is formed to a tray 21 adapted to receive in the particular example six glasses 22. The box 20 has a center opening 23 for the winding shaft 8 and six openings 24 corresponding with the six glasses 22. Three, preferably U-shaped brackets 25, 26 and 27 (Figs. 6 and 10), each serving as a floating bridge, are provided and the ends 28 of each of the brackets 25, 26 and 27 extend through the openings 24 of the box 20. Each one of the brackets 25, 26 and 27 is supported by respective resilient members 29, 30 and 31, as springs, rubber bands or the like, which springs are fastened to the inside of the box 20. At least one cross rod 32 contacts each one of the brackets 25, 26 and 27 and is rigidly connected with a master control rod 33. Any number of brackets can thus be in contact with the cross rod 32. A fulcrum 34 supports the master control rod and thereby the cross rod 32 and an additional spring 35, pressing against an extension 14' forming the other arm of the master control rod 33, maintains the cross rod 32 in steady contact with the brackets 25, 26 and 27 and at the same time the extension 14' in the path of

4

the governor 13, thereby stopping the operation of the movement.

The operation of the multi-control device takes place in the following manner:

If any of the series of weights, which are presented in the present example by glasses 22, are removed, the particular part of either bracket 25, 26 and 27 or floating bridge moves up at that particular point, due to the toggling action of the floating bridge, caused by the spring which supports the particular U-shaped bracket. This upward movement of this side of the bracket is transferred to the cross rod 32 which is rigidly fastened to the master control rod 33. The cross rod 32 and master control rod 33 swinging upon the fulcrum 34 turn the extension 14' against the pressure of the spring 35 out of the path of the governor 13 and, thereby, allow operation of the movement. The same action will take place regardless which one of the glasses 22 is removed from the tray.

It is of course possible to have the movement in operation when the glasses are on the tray and to stop the movement upon removal of either one of the glasses, simply by adjusting the extension 14' in such a way that it is in the path of the governor 13 when either one of the glasses 22 is removed and out of the path when all glasses are on the tray. Furthermore it is clear, that the multi-control device can be used for any mechanical movement.

While we have disclosed the principles of our invention in connection with several embodiments, it will be understood that these embodiments are given by way of example only and not as limiting the scope of the invention as set forth in the objects and the appended claims.

We claim:

1. In a multi-control device, a mechanical moving mechanism comprising a moving member, at least one floating member completely disconnected from said moving member and adapted to be moved at least indirectly into and out of the path of said moving member, at least two end portions extending from the floating member, each of said end portions being adapted to assume one position in which said floating member is out of the path of said moving member, thereby permitting operation of the moving mechanism, and another position in which said floating member is in the path of said moving member, thereby stopping the moving mechanism, and an additional member shifting said floating member from one to the other of the said positions.

2. The multi-control device, as set forth in claim 1, in which said additional member comprises a resilient member.

3. In a multi-control device, a mechanical moving mechanism comprising a moving member, at least one floating member completely disconnected from said moving member and adapted to be moved at least indirectly into and out of the path of said moving member, at least two end portions extending from the floating member, each of said end portions being adapted to assume one position in which said floating member is out of the path of said moving member, thereby permitting operation of the moving mechanism, and another position in which said floating member is in the path of said moving member, thereby stopping the moving mechanism, and an additional member shifting said floating member from one to the other of the said positions, and an extension part rigidly attached to said floating

5

member, said extension part adapted to move into and out of the path of the said moving member.

4. In a multi-control device, a mechanical moving mechanism comprising a moving member, at least one floating member completely disconnected from said moving member and adapted to be moved at least indirectly into and out of the path of said moving member, at least two end portions extending from the floating member, each of said end portions being adapted to assume one position in which said floating member is out of the path of said moving member, thereby permitting operation of the moving mechanism, and another position in which said floating member is in the path of said moving member, thereby stopping the moving mechanism, and an additional member shifting said floating member from one to the other of the said positions, and a cross rod member loosely engaging each of said floating members, a master control member rigidly secured to said cross rod member, a pivot member for turning the said latter two members, and an extension part running on said pivot member, said extension part adapted to move into and out of the path of said moving member.

5. In a dual-control device, a mechanical musical instrument comprising a governor, a housing receiving said instrument, a floating member, a resilient member supporting said floating member, openings in the top of said housing adapted to receive the ends of said floating member, a weight for each end of the latter to lower said end against the force of said resilient member, an extension rigidly fastened to said float-

6

ing member and adapted to take two respective positions relative to the said governor.

6. In a multi-control device, a mechanical musical instrument comprising a governor, a housing receiving said instrument, at least two floating members, a resilient member supporting each of said floating members, openings in the top of said housing receiving the ends of each of said floating members, a weight for each end of the latter, to lower said end against the force of said resilient member, a cross rod loosely contacting each of said floating members, a master control rod rigidly secured to said cross rod, an extension rod to said master control rod, a pivot adapted for turning of said master control rod and said extension rod; a resilient member supporting said extension rod, the latter being adapted to receive respective operative and inoperative positions.

FREDERICK M. GRUNICKE.
JOHANNES H. RAUSCHENBACH.

REFERENCES CITED

25 The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
1,203,658	Van der Shuys	Nov. 7, 1916
1,453,992	Palin	May 1, 1923
1,596,001	Cummings	Aug. 17, 1926
2,008,727	Sanford	July 23, 1935
2,166,978	Stack	July 25, 1939