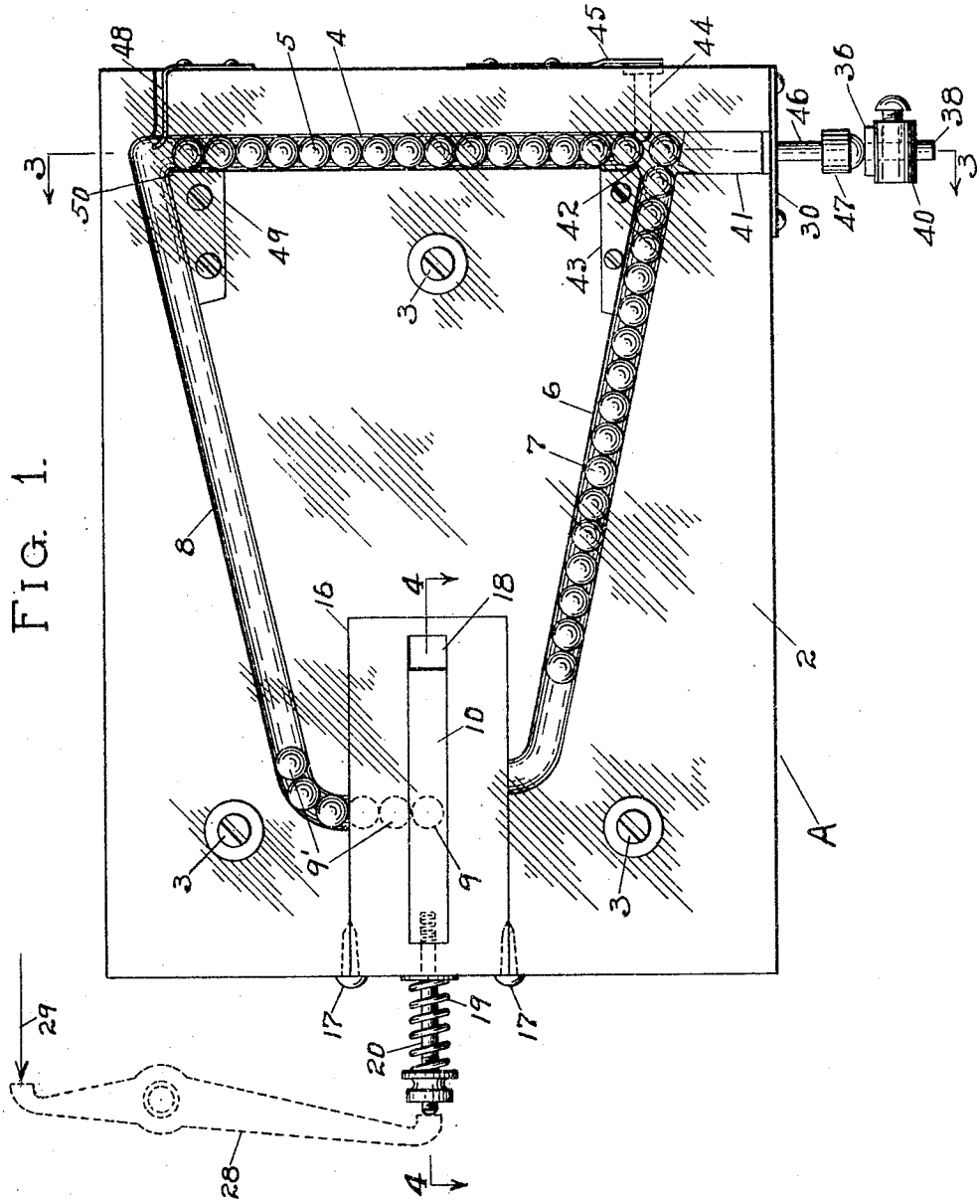
Nov. 24, 1931. S. J. SCHWEGLER 1,833,724

PREPAYMENT METER

Filed Jan. 10, 1930 3 Sheets-Sheet 1

FIG. 1.



WITNESSES

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PREPAYMENT METER

Filed Jan. 10, 1930 3 Sheets-Sheet 2

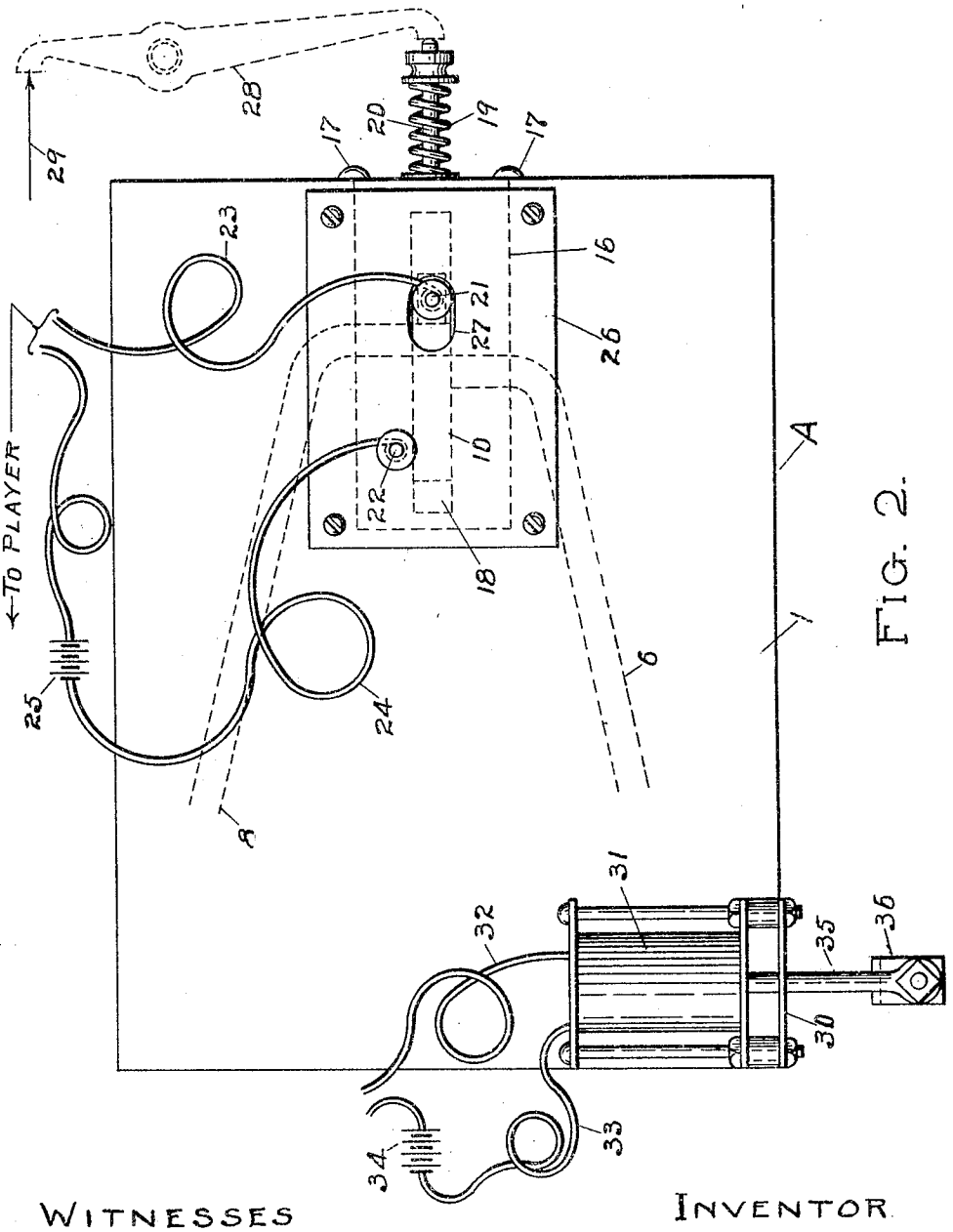


FIG. 2.

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PREPAYMENT METER

Filed Jan. 10, 1930 3 Sheets-Sheet 3

FIG. 3.

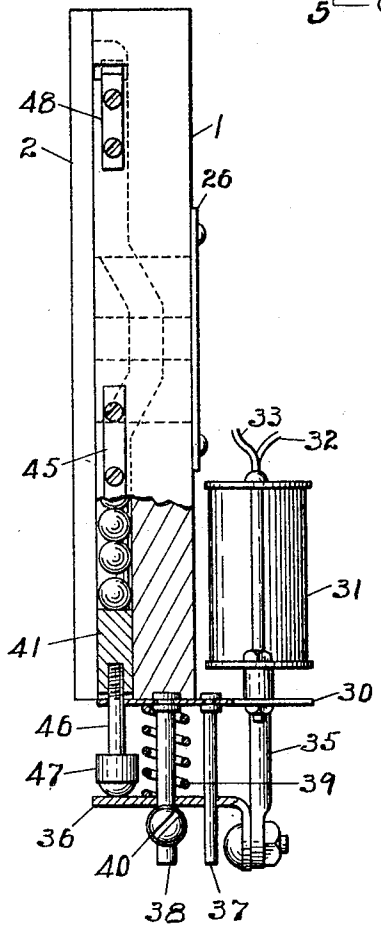


FIG. 4.

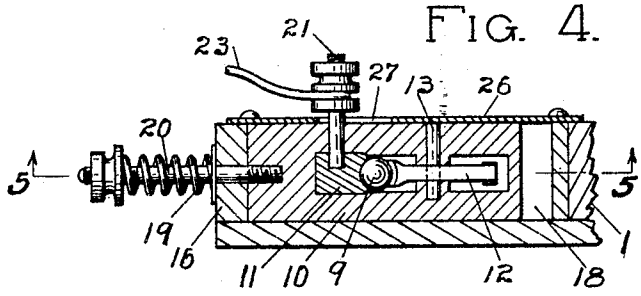
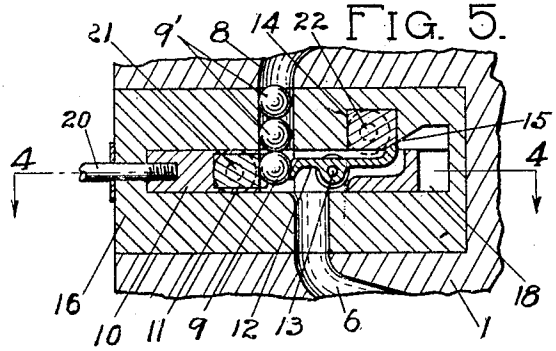


FIG. 5.



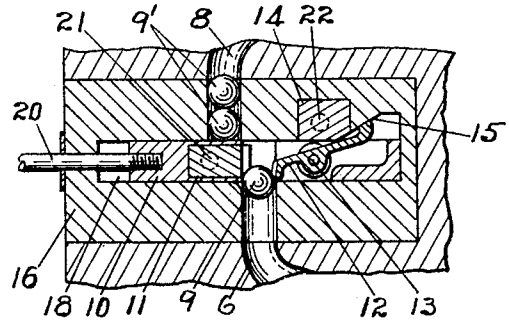


FIG. 6.

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UNITED STATES PATENT OFFICE

SIEGFRIED J. SCHWEGLER, OF BUFFALO, NEW YORK

PREPAYMENT METER

Application filed January 10, 1930. Serial No. 419,784.

This invention relates to a meter for the operation of any electrically operated instrument such as a player piano, a Victrola, or like musical or other instrument which is automatically started by said meter upon the depositing of a coin and automatically stopped upon the completion of the music or product paid for.

One method of operating a musical instrument upon prepayment is to place said instrument in a central room and arrange for the sound of the instrument to be conveyed to several different booths by ear phones. Each booth has means for receiving a coin. The depositing of a coin in said receiver in any one of the booths completes an electric circuit and starts the instrument which plays a tune and then stops. Another coin has then to be deposited to play the same or another tune as arranged on said instrument. By this arrangement a coin deposited in each booth at the same time provides for the playing of only one tune, or two or more coins deposited at the same time in one booth will cause only one tune to be played. Or where separate instruments are connected to separate booths the above method only provides for the depositing of a coin each time a tune is desired.

One object of the present invention is to provide a meter in which an electric circuit is completed upon prepayment by the depositing of a coin, said completed electric circuit starting a player or other electrically operated machine, and said electric circuit broken when the player has completed the prepaid music.

Another object is to furnish a meter which provides for the storing of means for automatically playing one record after another or repeating the same tune to the amount of the number of coins deposited at one time and the limit for said storage means.

With these objects in view, the invention consists in certain features of novelty in the construction, combination and arrangement of parts by which the said objects and certain other objects which will hereinafter appear are attained, the invention being more particularly pointed out in the claims.

In the drawings accompanying and forming a part of this specification,

Figure 1 is a front elevation of my improved meter having a glass front and showing the balls in their runways and a portion of them as stored after prepayment for the automatic playing of one tune after another.

Fig. 2 is a back elevation of the meter shown in Fig. 1.

Fig. 3 is an end elevation of said meter partly in section on line 3—3 of Fig. 1.

Fig. 4 is a section on line 4—4 of Fig. 5 and also of Fig. 1 with a ball in position to complete an electric circuit.

Fig. 5 is a section on line 5—5 of Fig. 4.

Fig. 6 is the same section as Fig. 5 but with the operating mechanism, or escapement, in a position to break the electric circuit and discharge the ball.

In the form of my invention illustrated, A is the complete meter. 1 is a panel shown as made of wood but can be of a stamping or any desired material so that the insulating and conducting parts are in proper relation to each other. 2 is a glass front for said panel 1 and fastened thereto by means of screws 3. 4 is a vertical runway for a column of balls 5. 6 is a lower horizontally inclined runway for holding a row of balls 7 which are fed one at a time up into the lower end of vertical runway 4 by the operation of the meter, while 8 is an upper horizontally inclined runway to receive the balls fed or discharged one at a time from the upper end of said vertical runway 4. 9 represents a ball in an opening in a slide 10 where it makes contact with a carbon or other electrical conductor 11 on one side and a conductor lever 12 on the opposite side (Fig. 4). Lever 12 is pivoted on a pin 13 and its end opposite the ball 9 makes contact with a carbon or other electrical conductor 14 on an inclined surface or cam 15. Lever 12 has an inclined surface as shown to wedge the ball 9 against the conductor 11 to make and hold a perfect contact as it has been found that this method is superior to resting a ball between two surfaces where its weight alone makes contact between them. This latter method causes

considerable sparking. 10, 12 and 15 form an escapement for ball 9.

16 is a block inserted in the panel 1 for carrying the slide 10 and is held in place by means of the screws 17. 18 is a guideway in the block 16 in which the slide 10 has a limited forward and backward movement for carrying the ball 9 as shown in Fig. 5 to the position shown in Fig. 6 when said ball 9 drops into runway 6. Slide 10 is returned to the position in Fig. 5 under the influence of spring 19 on a stud 20 which passes through block 16 and is fastened into said slide 10.

21 and 22 are binding posts connecting the carbons 11 and 14 into the electric circuit having wires 23 and 24 which are connected to the music player (not shown). 25 represents a battery or other power source to furnish electricity to the circuit 23—24.

26 is a plate fastened on the back of panel 1 to help hold the block 16 in the panel 1 and to close the guideway 18 on the back while the glass plate 2 closes it on the front. 27 is an opening in plate 26 to allow for the movement of the binding post 21 which travels with the slide 10.

Dotted lever 28 represents a means of connection between the music player (not shown) and the meter A whereby the player upon the movement of said lever 28 in the direction of arrow 29 will operate slide 10 to break electric connection in circuit 23—24 and stop said player.

30 is a shelf fastened to the bottom of panel 1 to support a solenoid 31 which is operated by the electric circuit 32—33 when a coin is dropped in a slot. The coin passing through a chute in the ordinary manner completes the circuit 32—33 and the current from battery 34 or other source of electric current operates the solenoid 31 to raise the shaft 35 and with said shaft the angle plate 36. 37 and 38 are rods fastened to shelf 30 and pass through holes in angle plate 36 to guide said angle plate in its up and down movement. 39 is a spring to retract the angle plate 36 and shaft 35 against the stop 40 which is adapted for adjustment on rod 38.

41 is a plunger to raise the lower ball 7 in runway 6 up into runway 4 where it is held between the point 42 on plate 43 and the upper side of the stop 44. The stop 44 is held in normal position as shown by a flat spring 45 which allows said stop 44 to be retracted for the passing of a ball. Fastened into plunger 41 is a cap screw 46 which rests on angle plate 36 and having a distance piece 47 to limit the upward movement of said plunger 41. Cap screw 46 can be adjusted into or out of plunger 41 to vary the movement of plunger 41.

At the upper end of runway 4 is located a flat spring 48 for directing the upper ball of the vertical column of balls 5 into runway 8 and also for the purpose of preventing more than one ball entering said runway 8 at a time. The sudden action of the column of balls 5 under the impulse of the solenoid 31 would throw more than one ball into runway 8 unless checked by the spring 48. A plate 49 with a hardened corner 50 is provided to maintain the proper distance to the spring 48.

The operation of the meter is as follows: A coin is dropped into a slot and falling through a chute (not shown) completes the electric circuit 32—33 to the solenoid 31 which draws up its shaft 35 with its connected angle plate 36 to raise the plunger 41 and the ball 7 resting on it. The upward movement of ball 7 retracts stop 44 and raises the column of balls 5 when the stop 44 returns to normal position and holds the column of balls 5 as in Fig. 1. The lifting of column of balls 5 forces the upper ball past the point 50 and the spring 48 when said upper ball rolls down runway 8 until it stops in the position of ball 9, Fig. 5, where it completes electric circuit 23—24 and starts the musical instrument to which it is connected. When the musical instrument has completed the tune or music paid for by the coin deposited, said instrument moves the lever 28 in the direction of arrow 29 and pushes the slide 10 to a position shown in Fig. 6 when contact between conductor 14 and lever 12 has been broken and the instrument stops while ball 9 drops into runway 6 to be used over again. The spring 19 retracts the slide 10 to position shown in Fig. 5 and is ready to receive another ball and again start the instrument playing.

A single coin deposited will play a single tune but where it is desired to have the instrument play more than one time without further attention a number of coins can be deposited at one time and an equal number of balls 9′ after the first ball 9 will be stored in runway 8 and the meter will automatically start the instrument to play as many tunes as are paid for.

It will be understood that various materials may be used in the construction of this meter to get the desired results and the balls may be of any desired material, as steel, copper, etc. It will also be understood that this meter may be applied to any electrically operated instrument such as a player piano, radio, victrola or other instrument to which it can be applied.

In place of the lever 28 for operating the slide 10 any electrical operating device can be used.

Having thus described my invention what I claim is:

1. In an escapement for making and breaking an electric circuit, a slide with a ball opening therethrough, a fixed conductor on one side of said opening, a pivoted lever

conductor having an inclined surface for contacting with a ball on the other side of said opening and holding said ball against said stationary conductor, a cam, and a third conductor having an inclined surface for contacting with said lever conductor opposite its ball contacting end, means to return and hold said slide in its normal position for holding a ball to complete a circuit through said conductors and means to operate said slide to break contact between said pivoted lever and said third conductor and discharge said ball by the operation of said lever on said cam.

2. A prepayment meter having upper and lower inclined runways and a connecting vertical runway, balls forming a column in said vertical runway, balls forming a row in said lower runway, a plunger to raise a ball from said row into said column and discharge a ball into said upper runway, a solenoid, connecting means between said plunger and said solenoid, circuit means including said solenoid adapted to be closed by a coin inserted into a chute to operate said solenoid and plunger whereby as many balls are discharged into said upper runway as coins are inserted into said chute at a time, a second electric circuit connected to an instrument, a slide in said second electric circuit, a cam, electric conductors in said slide to hold each of said balls at a time to complete said second circuit and operate said instrument, means operated by said instrument to move said slide to break said circuit and discharge its contained ball and means to operate said slide to return it to its normal position to receive another ball.

3. In a prepayment meter, a runway for balls comprising a vertical section, an upper inclined section, a lower inclined section, a row of balls in said lower section, a column of balls in said vertical section and reaching to the top thereof, means to support said column of balls, coin controlled electric means for raising a ball from the lower section into the lower part of the vertical section whereby the top ball in the vertical section is discharged into the upper inclined section, a slide for receiving the ball from the upper inclined section, means in the slide to contact with the discharged ball and complete an electric circuit, means to reciprocate the slide and means to permit the contacting or supporting means to release the ball so it can fall into the lower inclined section and open said electric circuit.

4. In a prepayment meter employing a number of balls in connected runways as a means of closing an electric circuit through said balls one at a time, the combination of a runway for balls comprising a vertical section, an upper inclined section, a lower inclined section, an escapement between said upper and lower sections, said escapement including a slide, a pivoted lever and a cam for operating said lever, balls in said runway to form a row in said lower section and a column of balls to the top of said vertical section, means to support said column of balls, coin controlled electric means to raise one ball at a time from said row into the lower part of said column to discharge only one ball at a time from the top of said column into the upper inclined section from which it falls into the slide of said escapement, means in said slide to contact with said discharged ball and complete an electric circuit and means to operate said slide and means to release said ball into said lower section and open said circuit.

5. In a prepayment meter, a runway for balls comprising a vertical section, an upper inclined section, a lower inclined section, a column of balls in said vertical section extending to the top thereof, means to support said column of balls consisting of a movable stop on one side and an opposing projecting point on the opposite side, a spring and an opposing point over the top of said column of balls, coin controlled electric means for raising a ball from the lower section into the lower part of the column and discharge the top ball into the upper section, a slide to receive the discharged ball from said upper section and return it into said lower section, means in said slide to hold said ball and complete an electric circuit therethrough, means to operate said slide and means to release said ball and break said circuit upon the operation of said slide.

6. A prepayment meter having upper and lower inclined runways and a connecting vertical runway, balls forming a column to the top of said vertical runway, means to support said column of balls, a plunger to raise a ball from said lower runway into the bottom of the column and discharge the top ball into the upper runway, coin controlled electric means to operate said plunger, means to vary the travel of said plunger, movable means having electric conductors to hold said discharged ball to close an electric circuit and operate an instrument, means to move said movable means and means to release said ball and break said circuit to stop the operation of said instrument and drop said ball into said lower runway.

In testimony whereof, I affix my signature.

SIEGFRIED J. SCHWEGLER.