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J. PETERSEN

DISCONNECTING GEAR FOR VENDING MACHINES

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Serial No. 309,917

2 Sheets-Sheet 1

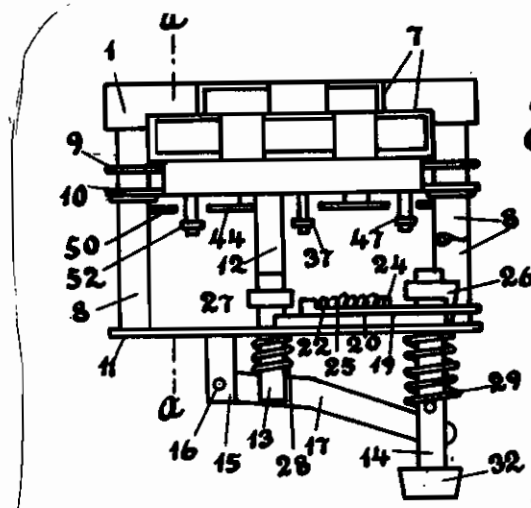

Fig. 1

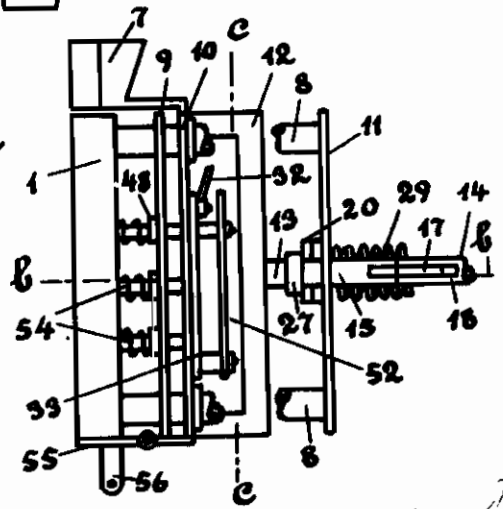

Fig. 2

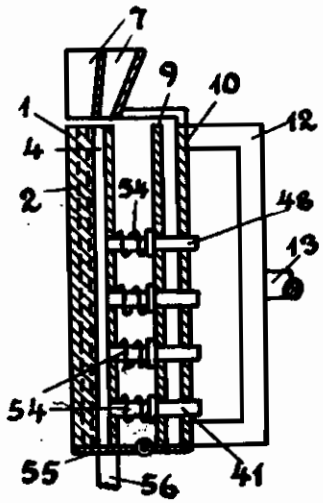

Fig. 3

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Fig. 4

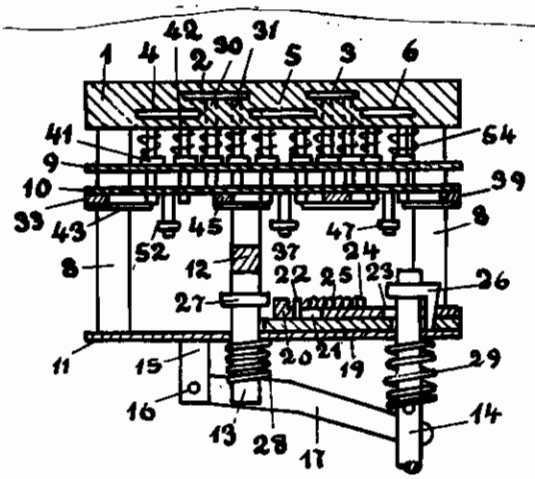
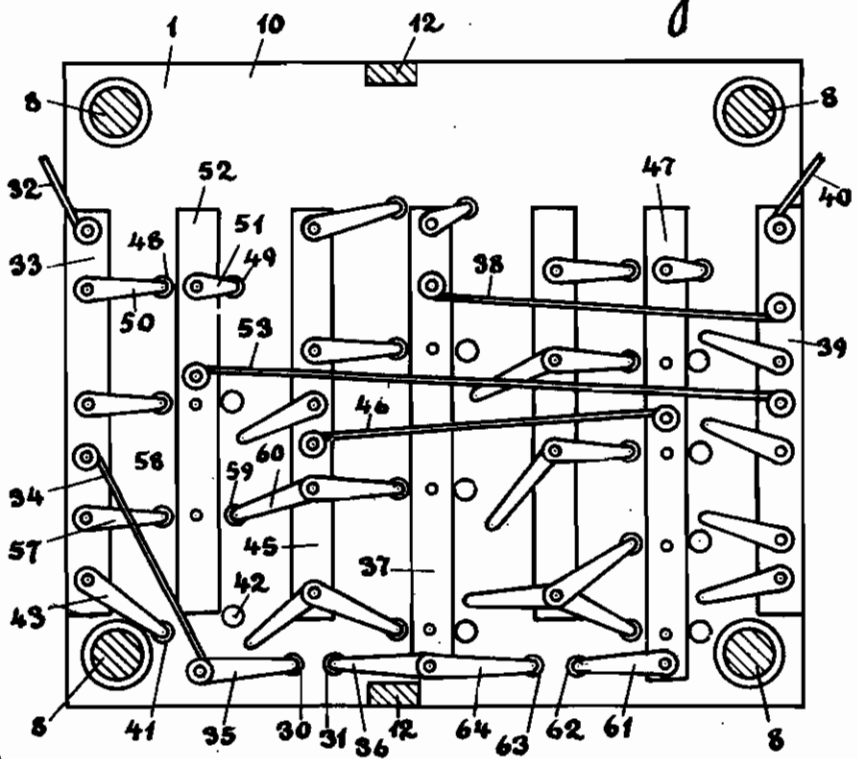


Fig. 5



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ALIEN PROPERTY CUSTODIAN

DISCONNECTING GEAR FOR VENDING MACHINES

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Application filed December 18, 1939

The known disconnecting gears for vending machines work by the influence of the weight of the coin on the disconnecting gearing, which is often disadvantageous, as no goods can be had from the vending machine, unless the particular coin for which the machine is made is thrown in. Thus by these disconnectors the machine cannot be brought to work by throwing in a number of other coins representing the value of the goods in question. This disadvantage has been avoided by the present invention, which relates to a disconnector for vending machines, in which each coin thrown in forms part of an electric line connection, which is not fully closed until the sum of the coins represents the amount by which disconnecting may take place, irrespective of which coins are used.

The drawing shows:

Figs. 1 and 2 a disconnector according to the invention in top and side view respectively,

Fig. 3 a section on the line *a*—*a* in Fig. 1,

Fig. 4 a section on the line *b*—*b* in Fig. 2,

Fig. 5 a section on the line c—c in Fig. 3 and drawn to a larger scale than the other figures.

1 is a plate of insulating material, in which are formed a number of canals 2, 3, 4, 5 and 6, one for each kind of coin. Above this is arranged a funnel-shaped part 7 with corresponding rooms for the throwing in of the coins. In the plate 1 are fixed some stays 8, on which a plate of insulating material 9 is fixed. Further, a plate of insulating material 10 is movably arranged on the stays 8. Finally, on the utmost end of the stays a plate 11 is fixed, the kind of material of which is indifferent. To the plate 10 is fixed a strap 12, provided with a pivot 13 which passes through a hole of the plate 11 and is movable therein. Through the plate 11 is carried a rod 14, which is movable in the plate. Further, a stay 15 is fixed on the plate 11. Round a pivot 16 of this stay is movably arranged an arm 17, which passes into a slit—not shown in the drawing—of the pivot 13 and, besides, into a slit 18 of the rod 14. On the plate 11 is further fixed a rail 19, on which is movably arranged a rod 20 furnished with a slit 21, through which a fixed pivot 22 of the rail 19 passes. Further, the rod 20 has a slit 23, through which the rod 14 passes. Between the pivot 22 and a fixed pivot 24 of the rod 20 a spring 25 is inserted. On the rod 14 is fixed a key 26 which passes into the slit 23. On the pivot 12 is fixed a boss 27. The arm 27 is kept out from the plate 11 by the influence of a spring 28 round the pivot 13 and a spring 29 round the rod 14.

When the vending machine is to be used, the coins are thrown, each into its room of the part 7. By way of example we take a price of 1 krone for the article in question. Disconnection can then be obtained by throwing in either one 1 Kr. piece or two 50 öre pieces or four 25 öre pieces or two 25 öre and one 50 öre pieces or 2 25 öre and five 10 öre pieces.

If a 1 Kr. piece is thrown in, this will glide through the canal 2 and reach off two movable pins 30 and 31 respectively. If then a button 32 of the rod 14 is pressed, the rod 14 will be pressed inwards, and the arm 17 will then press the pivot 13 with the strap 12 and the plate 10 inwards, so that the pins 30 and 31 will be pressed against the coil. Hereby the electric current is closed, which from a source of current—not shown in the drawing—through a line 32 is carried to a rail 33 fixed on the plate 10, from there through a line 34 to a contact spring 35 which is in contact with the pin 30, then through the coin to the pin 31 and to a contact spring 36, which is in contact with the pin 31 and in conducting connection with a rail 37 fixed on the plate 10, and from this through a line 38 to a rail 39 of the plate 10, from where the current through a line 40 returns to the source of current. The circuit thus closed furthermore passes through a magnet or other electric contrivance—not shown in the drawing—which can operate upon the disconnecting gear of the vending machine.

If the question is of disconnecting the vending machine by four 25 öre pieces, the coins are thrown into the canal 4. The bottom coin will stop off two pins 41 and 42 respectively. To disconnect the machine by this coin only will now prove impracticable, as the electric circuit will not be closed. The electric current through the line 32 and the rail 33 will pass through a contact spring 43 to the pin 41, then through the coin to the pin 42, from where it can get no further. If then another 25 öre piece is put into the canal 4, it will stop off two pins 58 and 59 respectively. If disconnecting is then tried, the current will go from the line 32 through the rail 33 through a contact spring 57 to the pin 58, through the coin to the pin 59 and from there through a contact spring 60 to a rail 45 of the plate 10. From the rail 45 the current proceeds through a line 46 to a rail 47 of the plate 10. Then the connection is cut out, so that disconnecting can take place. If then two 25 öre pieces more are put into the canal 4, disconnecting can take place, as the current from the line 32 through the rail 33 proceeds to a contact

spring 50 and from there to a pin 48 through the top coin to a pin 49 and from there through a contact spring 51 to a rail 52 of the plate 10. From the rail 52 the current goes through a line 53 to the rail 39 and further to the line 40, so that disconnecting of the vending machine can take place.

If the question is of disconnecting the vending machine by means of two 25 öre pieces and one 50 öre piece, two 25 öre coins are thrown into the canal 4 and one 50 öre coin into the canal 3. The electric putting in circuit will now be effected in the following manner: Through the line 32 to the rail 33, from there through the contact spring 57 to the pin 58, through the coin, the utmost 25 öre coin, to the pin 59, the contact spring 60, the rail 46, the line 46, the rail 47, a contact spring 61, a pin 62, the 50 öre coin, a pin 63, a contact spring 64, the rail 37, the line 38, the rail 39 and the wire 40.

The drawing shows several pins and contact springs, which are not provided with reference figures, as they are not mentioned in the specification. These serve the purpose of forming other connections than the examples given, when other coins are used or other prices of the commodities are in question.

By the pressing of the plate 10 the funnel 7 is pushed in over the plate 1, thereby covering the coin-canals of it, so that it will not be possible by pressing in the plate 10 when no coins have been thrown in, by which the pins in question will also be pressed slightly into the canals, to form circuit-closing by means of a single coin brought into contact with the upper pins.

The above-mentioned pins are movably arranged in the plates 9 and 10 and, likewise, they go movably into the plate 1 to the respective coin-canals. As stated above, the pins will be pressed inwards together with the plate 10. When the pressing in of this plate ceases, the pins will return under the influence of some springs 54 arranged round the pins and set under the pressing in.

The examples described above all deal with 1 krone as the price of the article in question, but by changing the electric lines and using some other pins and contact springs the disconnecting can easily be altered so as to be effected in connection with other sums of coins and, consequently, for other prices of the goods.

In order to make the disconnector small so as not to take up too much space in the vending machine, the canals 2–8 are not all placed side by side, but are arranged in stories.

Under the canals 2–8 is movably arranged a flap 55, which, under the influence of a spring—not shown in the drawing—is held up against the plate 1 and preventing the coins from falling out. On the flap 55 is fixed an arm 56, which can be connected with the device—not shown in the drawing—for the throwing out of the article, so that the flap 55 is opened and allows the coins to drop into a box—not shown in the drawing—together with the throwing out of the goods.

Under the pressing in of the rod 14 and the pivot 13 the broader part of the key 26 will be pressed out from the slit 23, whereby the spring 25 can pull the rod 20 to the left, by which when the pivot 13 with the boss 27 has also been pressed inwards, it will go in under the boss 27 and prevent the pivot 13 from returning at once after the pressing in has ceased. Not until the key 26 has moved backwards so much that it can press the rod 20 away from the boss 27 will the pivot 13 together with the plate 10 be able to move back, which happens all of a sudden, by which contact breaking spark by the breaking of the electric current is avoided.

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