

Sept. 30, 1952

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2,612,318

MONEY COUNTING MACHINE

Original Filed Oct. 18, 1946

Fig. 1

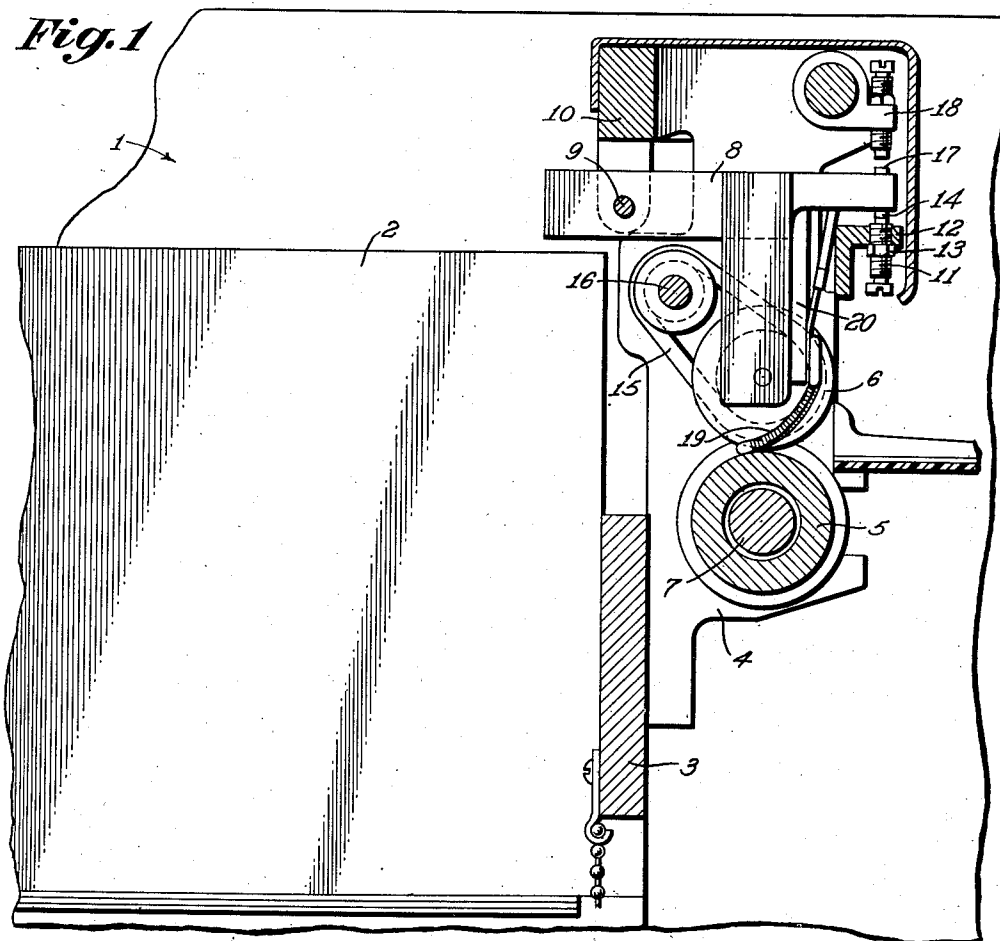
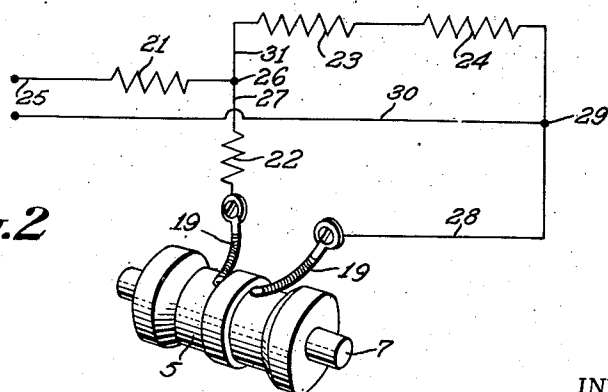


Fig. 2



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2,612,318

MONEY COUNTING MACHINE

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Original application October 18, 1946, Serial No. 704,111. Divided and this application December 12, 1949, Serial No. 132,574

3 Claims. (Cl. 235—92)

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This money relates to money-counting machines of the general type shown in my U. S. Patent No. 2,429,159, issued October 14, 1947, and this application is a division of application, Serial No. 704,111, filed October 18, 1946.

In the structure of my prior application and other machines of this general type, a cabinet is provided having a plurality of compartments to receive paper currency, each compartment receiving bills of a particular denomination where mixed money is being counted, or bills of a particular bank of issue where bills of one denomination are being handled. The bills are fed between pairs of rollers located at the upper forward edge of each compartment. In application, Serial No. 704,111, the rollers are mounted with the lower roller of each pair journaled to rotate about a fixed axis, and the upper roller being mounted upon a pivoted arm. The upper roller is the driven roller. In Patent No. 2,429,159, the lower roller is fixed and the upper roller movable, with the lower roller being the driven roller. The upper roller, or the pivoted arm upon which it is mounted, when lifted by the passage of a bill between the rollers serves to operate a micro-switch to close a circuit to operate a counter. These micro-switches frequently become sprung when forced beyond their normal movement by the simultaneous passage of two or more bills between the rollers. Original installation of these switches and their replacement is somewhat costly.

The object of the present invention is to provide means for initiating the operation of the counter which will not require the use of micro-switches.

Another object of the invention is to provide improved counter-operating means wherein one of the feed rollers of each pair is included as part of a control circuit, the counter for that pair being operated by a bill passing between the rollers and interrupting the control circuit to actuate the counter.

Other objects will become apparent from the following description of one practical embodiment of the invention when taken in conjunction with the drawings which accompany and form a part of this specification.

In the drawings:

Figure 1 is a partial vertical section through a money-counting machine incorporating the features of the present invention; and,

Figure 2 is a diagrammatic view of the electrical circuits employed to control the counter.

Referring in detail to the drawings, reference

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character 1 designates, in general, a cabinet of the type disclosed in the above-mentioned application and patent, in which there are a plurality of compartments to receive the bills being counted. These compartments are separated by means of vertical partitions 2, such as the one shown in Figure 1, and, extending across the upper forward edge of the partitions is a face plate 3. This plate is provided with a plurality of ribs 4, the ribs extending above and in vertical alignment with the partitions 2. Between the ribs, pairs of feed rollers 5 and 6 are mounted. Bills are fed into the respective compartments between these rollers. The rollers of each pair are mounted one above the other and serve not only to feed the bills to the compartments but to caliper the bills to prevent a miscount in the event two or more bills are fed to the rollers simultaneously. All of this structure is shown in detail in the above-mentioned application and patent.

In the present embodiment, the lower rollers 5 are idlers and mounted to rotate freely upon shafts 7. The upper rollers 6 are the driven rollers and each is mounted in the lower bifurcated end of an arm 8 pivoted as at 9 to a bracket 10 secured at the rear of the face plate. Arm 8 is freely pivoted, so that roller 6 drops down by gravity toward contacting position with roller 5. The position of rest of roller 6 is determined by means of an adjusting screw 11 threaded through the horizontal flange of an angle strip 12 extending across the machine and fixed to the ribs 4.

Screw 11 is held in its position of adjustment by means of a lock nut 13 and the end of screw 11 contacts the lower surface, with extension 14 projecting forwardly from arm 8 and overlying screw 11. Screw 11 is adjustable upwardly raising rocker arm 8 about its pivotal end and lifting roller 6. Proper adjustment is had when roller 6 just clears roller 5, so that roller 6 may rotate freely without imparting rotation to roller 5 when no bill is between the rollers. This saves wear on the rollers and cuts down on the machine noise. Rollers 6 are driven by means of belts 15 from a drive shaft 16, which shaft is driven by an electric motor, not shown.

Each of the arms 14 carries pin 17 to strike the operating arm 18 of the double bill mechanism described in detail in the above-mentioned applications.

The lower roller 5 forms part of the control circuit for a piece counter, the control circuit normally being closed and the insertion of a bill

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between the rollers interrupting the current flow through the control circuit causing actuation of the counter. Resilient wiper contacts 19 are carried upon insulating blocks 20 of roller arm 8 on opposite sides of the roller 6. The wiper contacts are flexible and turned backwardly, so that their lower ends are in peripheral contact with roller 5 at spaced points. Roller 6 serves as a bridge to close a circuit, to be described, across the contacts. This arrangement of the wiper contacts and the roller 5 is shown in Figure 2.

Referring to Figure 2, it will be seen that the counter circuit includes the resistances 21, 22, 23 and 24, the wiper contacts 19 and the roller 5. Resistances 23 and 24 are the coils of the piece counter mentioned above and resistances 21 and 22 are regulators to reduce the current flow through the counter coils or the wiper contacts as the case may be, resistances 21 being common to both circuits. It is essential to the invention that the combined resistances of counter coils 23 and 24 which are connected in series be greater than the resistance 22.

When the machine is in operation, current flows from a source of power 25, through resistance 21 to point 26, line 27, resistance 22, one wiper contact 19, roller 5, the other wiper contact 19, line 28 to point 29 and negative line 30.

Current continues to flow through this circuit until such time as a bill is inserted between the rollers 5 and 6, whereupon the bill will pass between the wiper contacts and roller 5 lifting the contacts from the roller and breaking the circuit. With this circuit open, current will flow through the counter coils 23 and 24 and actuate the counter. This latter circuit comprises positive wire 25, resistance 21 to point 26, line 31 to counter coils 23 and 24 to point 29 and negative line 30. As soon as the bill passes from between the rollers 5 and 6, wiper contacts 19 will again engage roller 5 and the current will resume its course through the circuit of less resistance comprising resistance 21, wiper contacts 19 and roller 5.

Thus, it will be seen that current flows continuously through the device, passing through the lower roller 5 as a normal course and being diverted through the counter coils when the circuit through the roller is broken by the passage of a bill between the rollers.

While I have in the above described what is believed to be a preferred and practical embodi-

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ment of the invention, it is to be understood that departures may be made from the precise embodiment described within the scope of the appended claims.

What is claimed is:

1. In a paper money counting machine having a bill receiving compartment with a pair of bill feeding rollers at the entrance to said compartment and a piece counter having actuating coils associated therewith, a pair of electrical circuits in parallel receiving current from a common source, one of said circuits including said piece counter coils and the other circuit including a pair of wiper contacts engaging one roller of said roller pair, a resistance in said wiper contact circuit, and a resistance common to both circuits, the resistance in said piece counter circuit being greater than the total in said wiper contact circuit, said wiper contacts engaging said roller in such position that the passage of the bill between said roller lifts said wiper contacts from said roller.

2. An article counting mechanism comprising, a compartment to receive the articles as counted, a pair of feed rollers at the entrance to said compartment, a piece counter having actuating coils associated with said compartment, and a pair of electrical circuits in parallel receiving current from a common source, one of said circuits including said piece counter coils and the other of said circuits including a pair of wiper contacts to engage one of said rollers, said wiper contacts positioned upon said roller in such manner that articles to be counted entering between said rollers will lift said contacts to break the circuit in which they are included.

3. Piece counter mechanism as claimed in claim 2, a resistance in said wiper contact circuit, the resistance of said piece counter coils being greater than the resistance in said wiper contact circuit.

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

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