

Aug. 6, 1940.

H. STROTMANN

2,210,472

CASH REGISTER

Filed Oct. 27, 1938

3 Sheets-Sheet 1

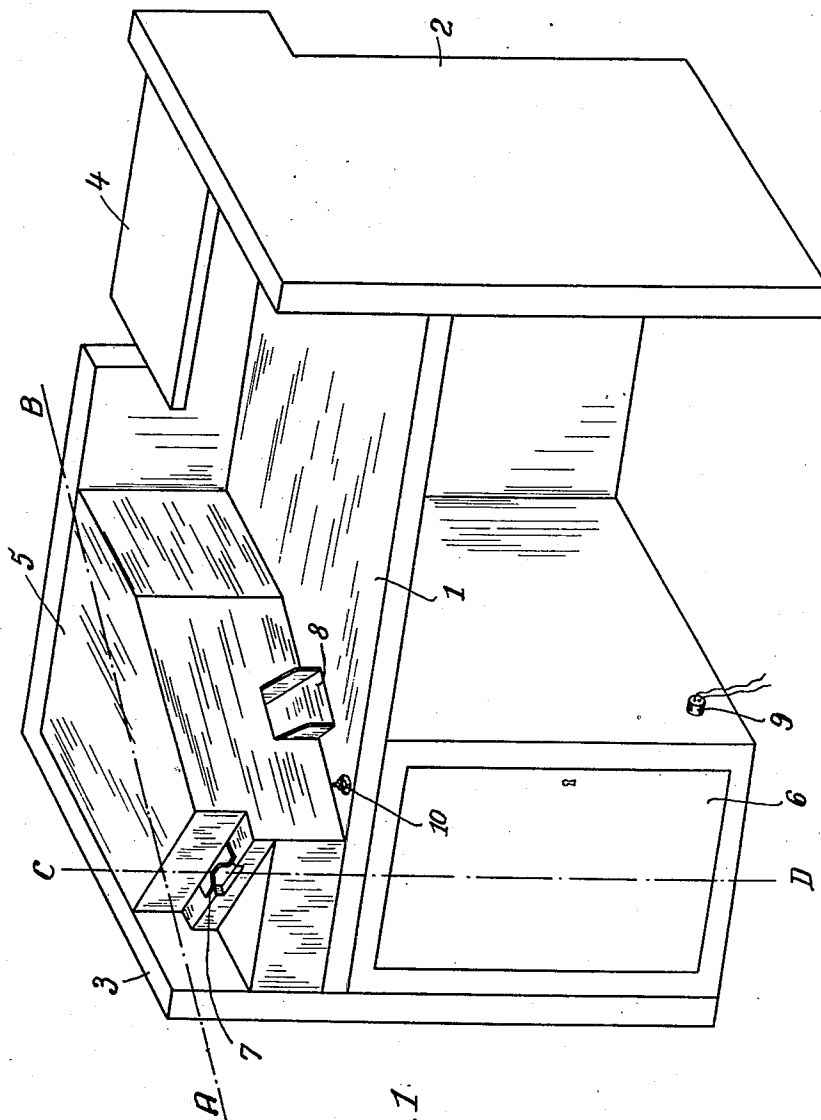


Fig. 1.

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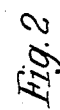
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Filed Oct. 27, 1938

3 Sheets-Sheet 2



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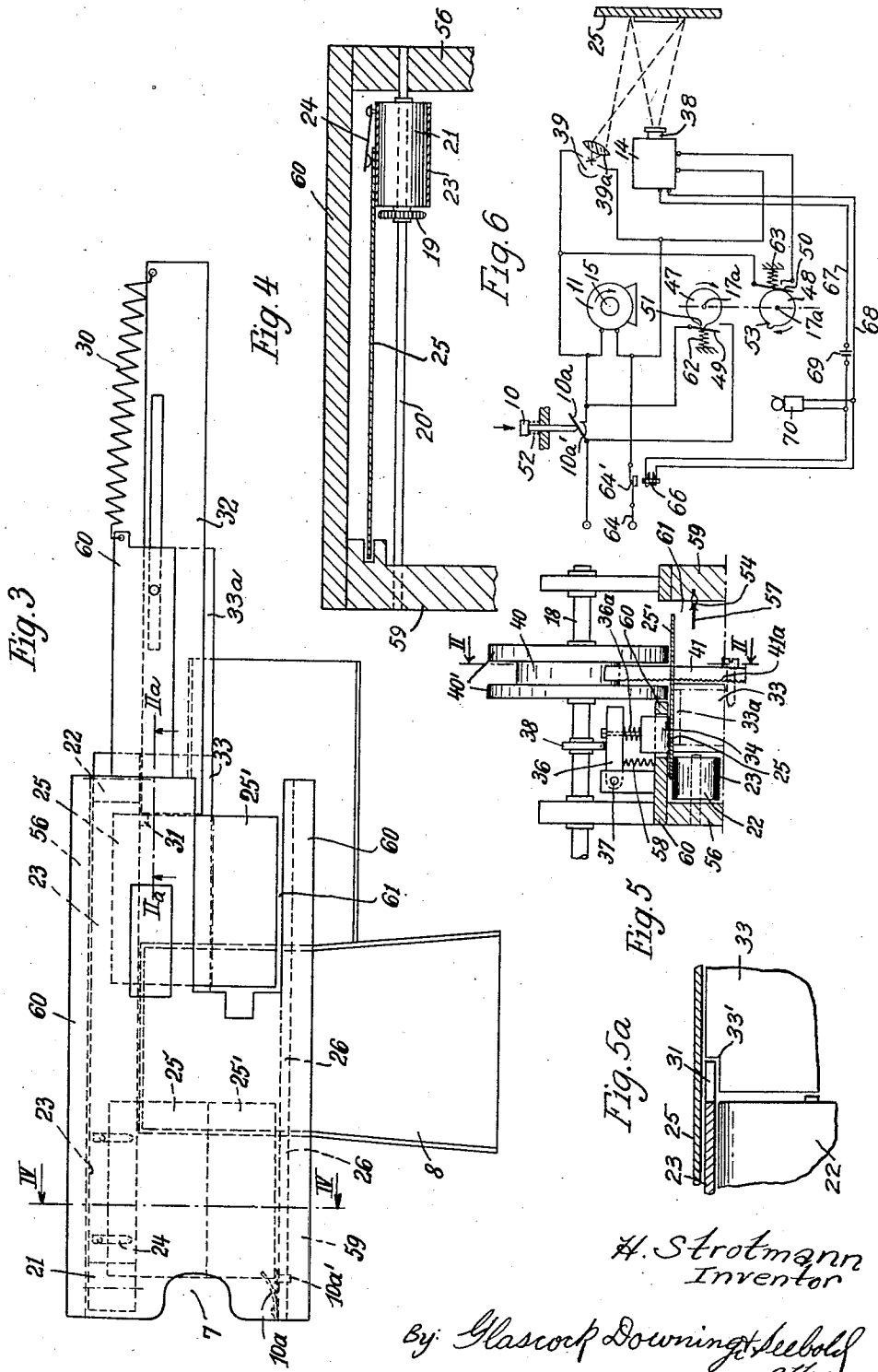
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CASH REGISTER

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UNITED STATES PATENT OFFICE

2,210,472

CASH REGISTER

Hugo Strotmann, Berlin-Grünwald, Germany

Application October 27, 1938, Serial No. 237,347
In Germany October 28, 1937

2 Claims. (Cl. 88—24)

This invention relates to a novel cash register. It is an object of my invention to provide a simple and reliable system of recording the sales and the sums received without the necessity for the operator of depressing any number keys.

Another object of my invention is to provide automatic means for recording in a simple and reliable manner all the data marked on a sales note or card attached to the sales article and handed to the buyer after its passage through the cash register.

Still another object of my invention is to provide means for printing or punching any desired marks on the card in the recording operation.

Still a further object of my invention is to provide means for cutting off one section of the sales card for handing it to the buyer while withholding the rest of the card in the cash register.

With these and other objects in view, as may become apparent from the following disclosures, the invention consists not only in the structures herein pointed out and illustrated by the drawings, but includes further structures as hereinafter may be claimed.

The character of the invention, however, may be best understood by reference to certain of its structural forms, as illustrated by the accompanying drawings in which—

Fig. 1 is an isometric view, viewed from the standpoint of the operator, of a cash register having the invention applied thereto.

Fig. 2 is a fragmentary section on the plane A—B, C—D of Fig. 1, and on the line II—II of Fig. 5, with the ejector device in a position before the ejecting operation.

Fig. 2a is a detail of Fig. 2, on a larger scale and in a section on line IIa—IIa in Fig. 3.

Fig. 3 is a top view of the same cash register, with the casing 5 removed and various driving parts being omitted.

Fig. 4 is a fragmentary section on line IV—IV of Fig. 3, on a larger scale.

Fig. 5 is a fragmentary section on line V—V of Fig. 2, viewed in the direction of the arrows.

Fig. 5a is a detail of Fig. 5, on a larger scale.

Fig. 6 is a circuit diagram.

Similar reference numerals denote similar parts in the different figures.

Referring now to the drawings in greater detail, and first to Fig. 1, it will be seen that the cash register is built into a table comprising the table plate 1, the side walls 2 and 3 and the cash board 4. The various devices forming together the cash register are accommodated within the

casing 5 and in the space behind the door 6, below the casing 5.

Item 7 is the inlet slot for the sales card or slip and 8 is the discharge chute. The plug socket for the current supply is indicated at 9 and 10 is a push button for operating the cash register.

The various devices in the cash register will now be described with reference to Figs. 2 to 5.

Referring to Fig. 2, a shaft 18 is driven from the shaft 15 of an electric motor 11 mounted on a plate 55, through a bevel gear 16, a shaft 17a and a chain drive 17. Through a further chain drive 19 there is driven from shaft 17a a shaft 20 which by means of its roller 21 drives an endless conveyor belt 23 running over roller 21 and over an idle roller 22. The shafts 17a and 20 and the shaft of the idle roller 22 are rotatably mounted in the side walls 56 and 59 of the cash register.

As shown best in Fig. 4, the endless belt 23 adjacent to its left hand edge carries two clips or clamping springs 24 serving to attach the sales card 25 to the belt 23. Moreover the right hand edge of the sales card 25 is guided in a slot 26 of the side wall 59 of the cash register.

An embossing or printing device 27 (Fig. 2), comprising the two number rollers 27a, 27b and driven from the shaft 20 by a belt drive 27' is arranged adjacent to the lower face of the upper side of the belt 23 in an operative position with respect to the sales card attached to the belt. The shafts of the number rollers 27a, 27b are also supported in bearings mounted on the side wall 56 of the cash register.

As best seen in Fig. 5, in connection with Fig. 2, a rest 33 is provided for the sales card in co-operation with a depressing member 34 which is guided by means of a projection in a bore of a lever 36 pivoted at 37, and acted upon by said lever through a pressure spring 36a. A cam 38 on shaft 18 is capable of depressing the lever 36 against action of a spring 58. The pressure exerted upon the sales card by the member 34 is so rated that the sales card 25 is disengaged from the clips 24 on the travelling belt 23.

Provided on the shaft 18 (Fig. 5) is also a cam 40 acting upon a knife 41, which is pivoted at 41a (Figs. 2 and 5) and toothed at its cutting edge to produce a toothed cut in co-operation with the upper right hand edge of the rest 33. Flanges 40' of the cam 40 form a lateral guidance for the knife.

The endless belt 23 is provided with a projection 31 (Figs. 2 and 2a) which passes through an edge groove 33' of the rest 33 (Fig. 5a) and is capable of engaging an ejector bar 32 guided be-

tween an extension 33a of the rest 33 and an upper plate 60, moving the bar in a right hand direction against action of a tension spring 30 secured to the plate 60 at 30'.

5 Arranged below the rest 33 (Fig. 2) is an inclined chute 44 of a transparent material, such as, glass, terminating in the sales card collecting chamber 45 of the cash register.

10 An electric bulb 39 including a swingable lens system 39a is mounted on the plate 55 in the position shown in Fig. 2, adjacent to a photographic camera 14, having an objective lens 65 focussed upon the section 25' of the sales card in the free space 61 to the right of the rest 33 in Fig. 5. The camera 14 is of the type having a film feeding device operated by a step by step switching mechanism that is automatically operated and advanced through one step by each operation of the shutter. The shutter in turn is capable of being operated electromagnetically. Cameras of this type are known per se and available on the market and, therefore, need not be described in detail.

25 The circuit diagram will now be described with reference to Fig. 6 in connection with Fig. 2. A switch 10a, 10a' operated by the push button 10 serves to switch in the bulb 39 and the motor 11. Thus, the shaft 15 of said motor through the bevel gear 16 drives the shaft 17a on which cams 47 and 48 having projections 51 and 53 for actuation of automatic switches 49 or 50, respectively, are mounted. It will be understood that the cams are coaxially mounted on shaft 17a although they are shown in Fig. 6 as arranged on parallel shafts. 35 The switch 49 when closed under action of a spring 62 during the period where it is not engaged by projection 51, shunts the switch 10a while the switch 50 acted upon a spring 63 serves to energize an electromagnetic shutter (not shown) in the camera 14.

40 The operation of my novel cash register will now be described.

The cashier receiving from the buyer the sales card 25 and a sum for payment of the amount indicated on the sales card introduces the sales card into the slot 7 and depresses the push button 10. After a very short time the sales card will be discharged at 8, provided with the note "Paid" and a current number and, if desired, the trademark of the firm so that it can be handed to the buyer together with the change. During the passage of the sales card from point 7 to point 8, the following operations take place: When the sales note which preferably is in the form of a somewhat rigid card is inserted at 7 for engagement with the groove 26, and under the clips 24, (Figs. 3 and 4), the switch 10a is closed by depression of push button 10, against action of a spring 52, and the motor 11 is thus energized from the source of current, 9, whereby the endless belt 23 is driven, through the driving parts 15, 16, 17a, 19, 20, 21 and the card 25 is carried, from the initial position shown in dotted lines (Fig. 2) past the printing or embossing device 27, 65 27a, 27b, where the word "Paid," a current number or date and, if desired a trade-mark are printed or embossed on the card 25, to the end position on rest 33, shown in Fig. 2 in solid lines. Now the member 34 is depressed, by action of the controlling and driving parts 15, 16, 17a, 17, 18, 38, 36, whereby the card 25 is retained in its end position on rest 33 and cleared by the clips 24.

70 When the card 25 has reached this end position, the switch 50 is closed by the projection 53 of cam 48 and the shutter of the objective device

65 of the camera 14 is opened whereby the section 25' of the card in the free space 61 to the right of the rest 33 (Fig. 5) is photographed on the film in the camera, through the transparent chute 44. The shutter is then automatically closed and the film in the camera is automatically advanced through one step, by a step by step switching system of any suitable known construction. The said switching system may be driven electrically or by a clockwork in the camera that may be wound up each time a new film is inserted.

Immediately after the film strip has been exposed, the knife 41 is swung down, through the driving parts 18, 40, against action of the tension spring 42 (Fig. 2), and the section 25' is separated from the section 25 of the card, a toothed cut being provided at the card 25 whereby it is shown that the same has actually passed the respective cash register. The shape of the teeth may be varied to distinguish different cash registers. The sections 25' will fall down into the chute 44 and are collected in the chamber 45.

During the travelling of the belt 23, the ejector bar 32, by the projection 31 of the belt, has been moved to its extreme right hand position, against action of the tension spring 30 (Fig. 2); now, as the projection 31 travels on and clears the edge of the ejector bar 32, the same is moved in a left hand direction (Fig. 2), by action of spring 30, whereby the rest of the card 25 that has not been photographed is ejected in a left hand direction so that it falls into the inclined chute 8 through which it is discharged. A spring 46 serves to guide the sales card into the chute 8.

When the clips 24 have reached their initial position shown in Fig. 2 in dotted lines, the projection 51 of cam 47 opens the switch 49 whereby the motor and the bulb 39 are switched off and the switch 50 for the shutter of the camera becomes currentless. The whole cycle of operations may now be repeated when another sales card is inserted.

It will be understood that while the single steps have been described at length, the whole passage of the sales card through the cash register actually takes only a very short moment.

Together with the sales card there may be photographed a mark inserted in the cash register by the operator and indicating the name or initials of the operator. Such a mark 57 may be clamped between two clips 54, Fig. 5 and may consist of a transparent slip signed by the operator.

By way of alternative, the switch 10a may be operated automatically by the sales card entering the slot 7, so as to render the operation of push button 10 unnecessary. To this end, the switch 10a may be provided in the form of a contact spring at slot 7, as indicated in dot and dash lines in Fig. 3 for actuation by the sales card 25 which will press the spring into the position indicated in dotted lines, so as to contact the point 10a' which corresponds to the point 10a' in Fig. 6. It will be clear that this alternative automatic switch arrangement is shown purely schematically and may be constructed in any other suitable manner, as will readily occur to one skilled in the art.

It will thus be understood that my novel cash register will automatically mark the sales card by printing or punching, take a photographic copy of the sales card or of a desired section thereof, cut off a section 25' from the card which is collected separately at 45 and eject the remaining section of the card. In this manner, a double

check or control is obtained and two different departments may be given notice of the sale at the same time, by the sections collected at 45 and by the film in the camera which, of course, at any desired intervals is taken out of the camera, replaced by a new film and developed, i. e., daily, hourly, or after its end has been reached. An alarm signal (not shown) may be provided for actuation when the film end has been reached or an automatic relay switch as indicated at 64 in Fig. 6 may switch off the whole cash register when the electromagnetic step by step switching system in the camera cannot operate for this reason. To this end, the coil 66 of the switch is energized from a source of current 69, through conductors 67 and 68 which are automatically short circuited in the camera as the step-by-step switching system reached its end position, by devices which are described, for instance, in the U. S. Letters Patent 1,806,763 and, therefore, are not shown here. In the energized condition of the coil the contact arm 64 is attracted by the coil and disengages the contact 64', whereby the circuit is opened and the cash register put out of operation for rewinding of the step by step switching mechanism and insertion of a fresh film. Where an alarm signal is used, the same may be provided in the form of a bell or buzzer connected across the conductors 67, 68, as indicated at 70 in Fig. 6.

My novel cash register is particularly suitable in connection with sales cards of the kind attached to the sales article and indicating, for instance, the selling price, stock number, purchase price (in cyphers), number of the packing table, number of the sales force, date of receipt of the article, number of maker etc. All the statements on the sales card, or on the respective section of the sales card, will be copied automatically without any error being possible and without requiring any attention by the cashier.

It is also contemplated, within the purview of my invention, to photograph substantially the whole sales card instead of the section 25' only. To this end, the rest 33 may be formed with a gate, as indicated in Fig. 5 in dot and dash lines, and a transparent plate 33a may be provided in this gate, also as indicated in Fig. 5 in dot and dash lines.

According to a further modification, the cash register may be constructed so that the whole card may be discharged through either of the chutes 8 or 44 without being cut into two pieces. To this end, the parts 33 and 34 may be made quite narrow, so as to hold the card in position only and to clear it from the clips 24. The knife

device 40, 40' may be omitted in this case and the cam 38 may be shaped and adjusted to allow raising of the depressing member 34 immediately after exposure of the film, so that the card 25 will be allowed to fall down into a suitable chute (44 or 8) over which it will be discharged for being handed to the buyer. In this case, the parts 30, 31, 32, 41a and 42 for ejecting the section 25 of the card clamped between 33 and 34 may also be omitted.

While the invention has been described with reference to specific constructional details it will be appreciated that changes may be made therein. Such modifications may be made without departing from the spirit and scope of the invention as set forth in the appended claims.

I claim:

1. In a cash register, an inlet for sales notes, an outlet for said sales notes, belt conveyer means between inlet and outlet for carrying said sales notes from the inlet to the outlet end of the belt conveyer, means for attaching each sales note to the belt conveyer at its inlet end, means for arresting the sales note at the outlet end of the belt conveyer for disengagement of said attaching means, a self-feeding photographic film camera directed and focussed to the arrested sales note, means for automatically operating the shutter of said camera as the sales note is arrested, spring-acted ejector means, a projection on said belt adapted to engage said ejector means for loading said ejector spring and positioned to clear said ejector means after the photographing operation for permitting the discharge of said sales note under the released spring action, and means for discharging said sales note after the photographing operation.

2. In a cash register, an admission gate for sales notes, a discharge for said sales notes, an endless belt for conveying each sales note from the admission gate to the discharge, at least one clip at said belt for attaching the sales note to the belt, means for automatically marking said sales note during its passage through the cash register, a photographic camera directed and focussed to a point in the travelling path of the marked face of said sales note, a source of light adapted to illuminate said point, means for setting said conveying means in operation, means for switching in said source of light, means for retaining said sales note at said point while said clip clears said sales note and travels back to its initial position, and automatic means for operating said shutter when the sales note has reached said point.

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