

[54] **TOY CASH REGISTER**

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[57] **ABSTRACT**

A toy cash register with numerals for indicating the register amounts which are inserted by means of keys that are depressed to displace them in an axial direction. The numerals are placed into indicating positions by a lever arrangement which is actuated by depressing the keys. The indicating numerals are locked in place by a spring actuated clearing track and a holding device for the lever arrangement. A base member, two side walls, a head plate, and a frame surrounding, a frontal wall are all formed from an integral injection molded plastic unit. A face plate mounted in the frame has the indicating mechanism attached to its lower side. The indicating mechanism can be mounted in place by inserting through a rear wall when open.

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[58] Field of Search ..... 235/1 E, 12

[56] **References Cited**

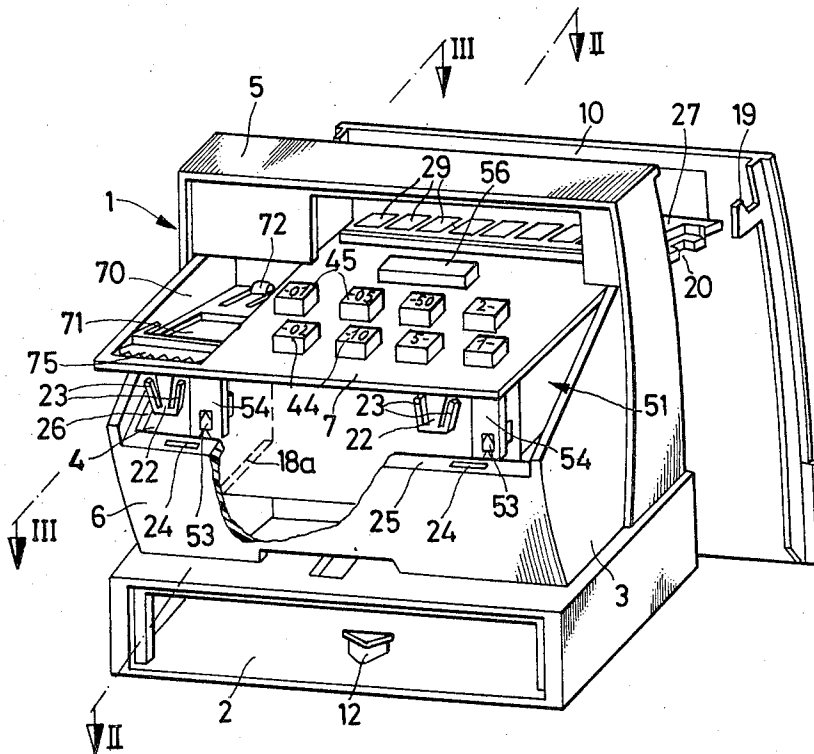
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**20 Claims, 7 Drawing Figures**



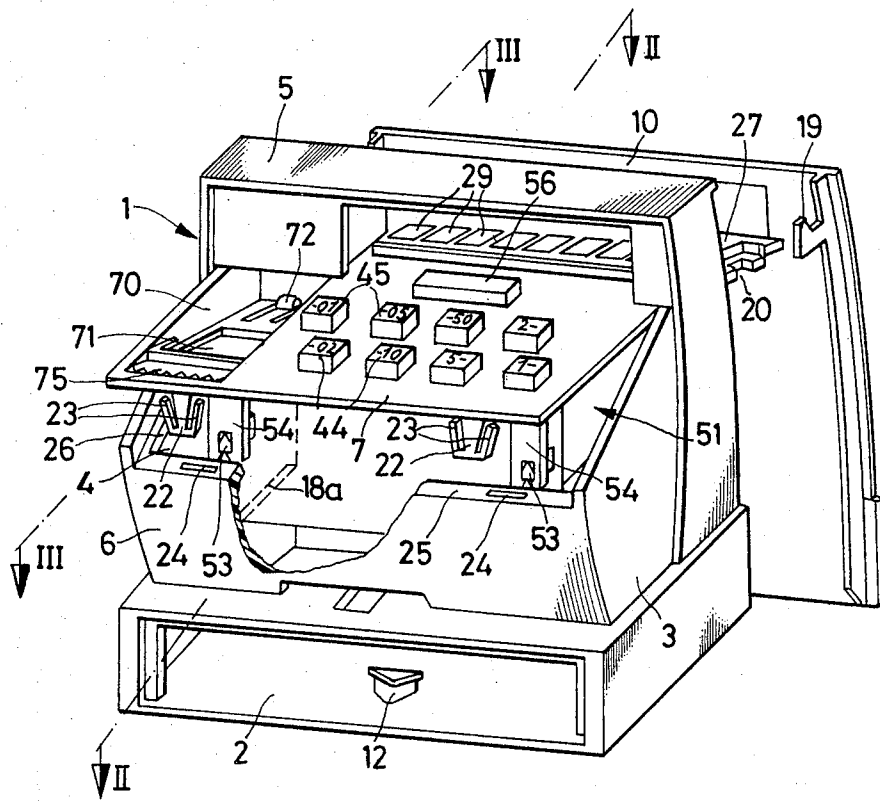


FIG.1

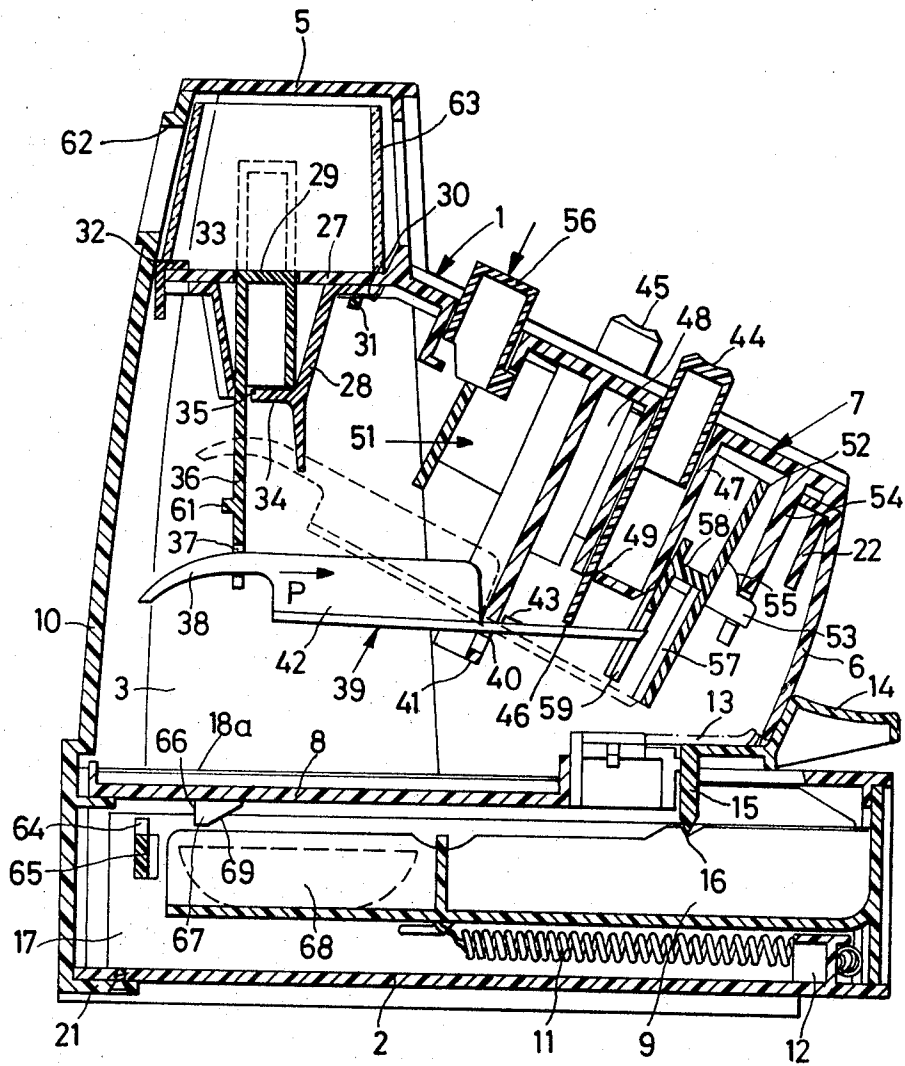


FIG. 2

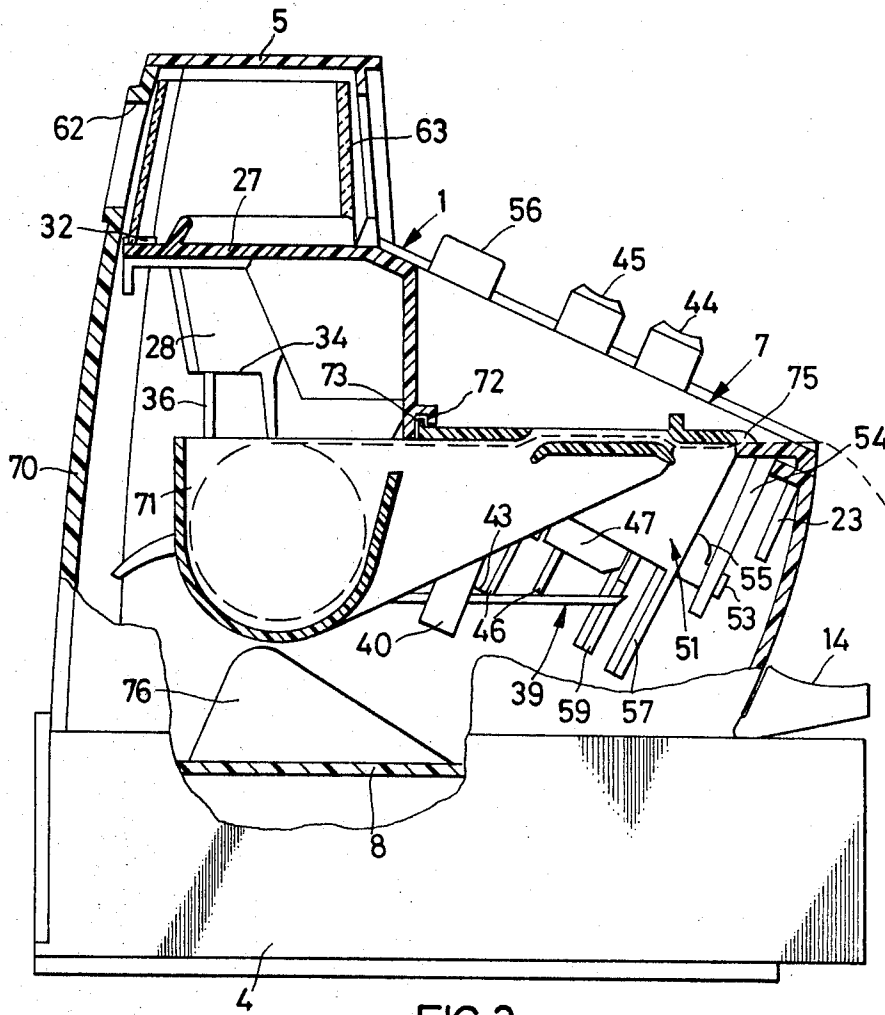


FIG. 3

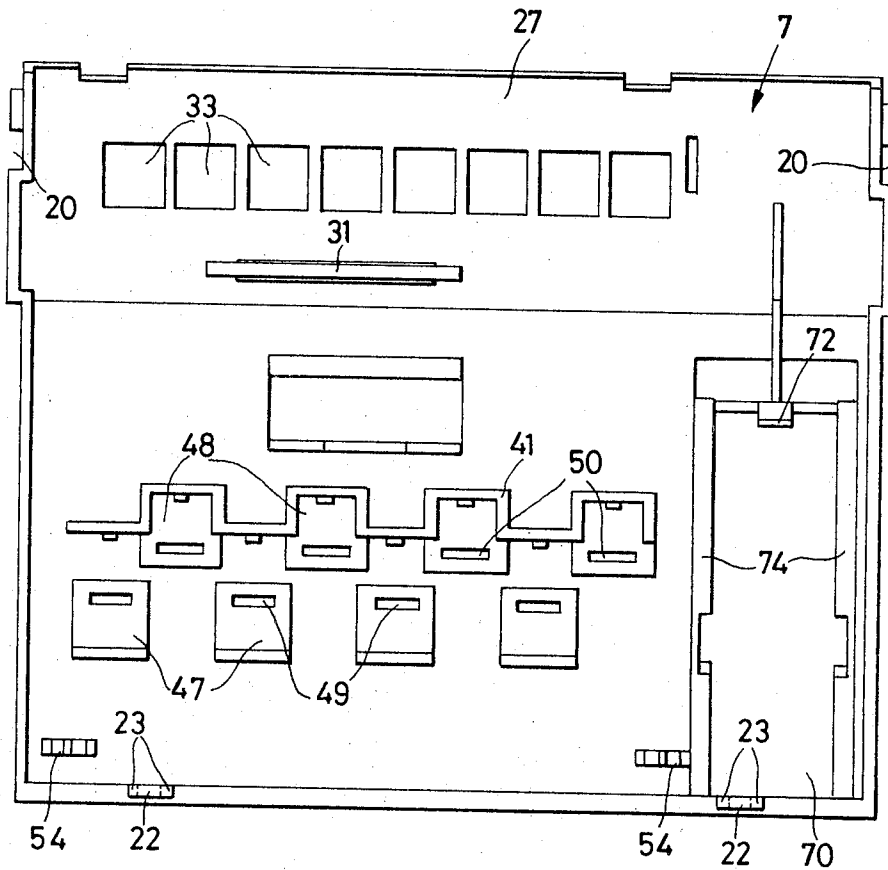


FIG. 4

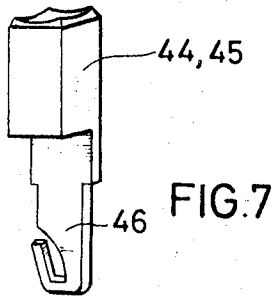
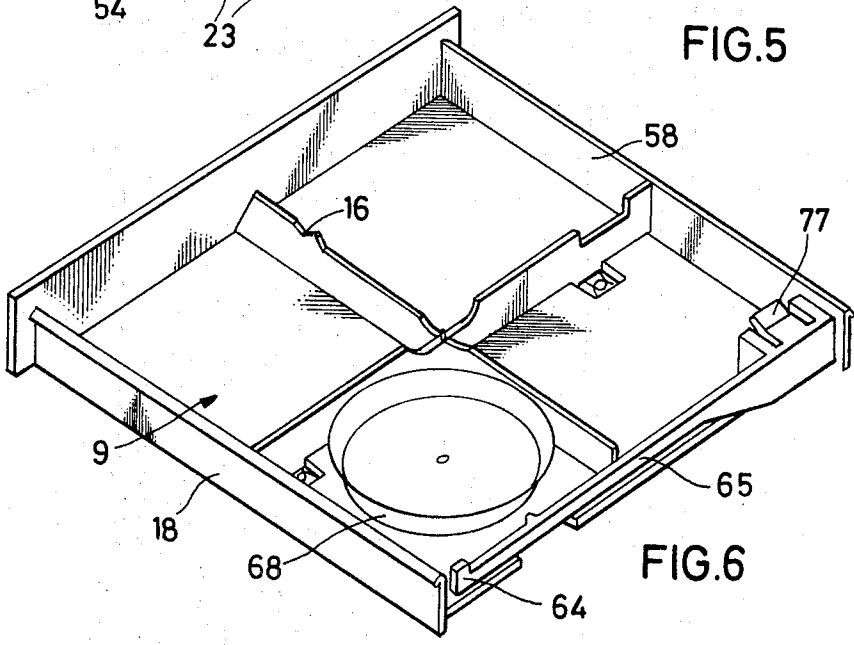
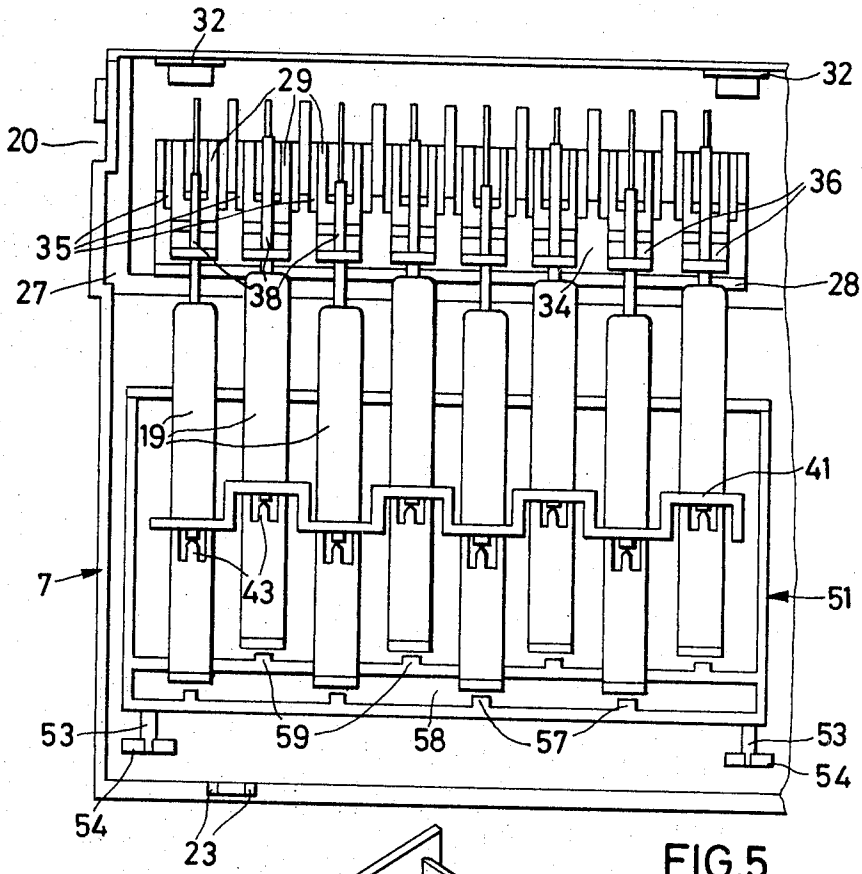


FIG. 7



## TOY CASH REGISTER

## BACKGROUND OF THE INVENTION

The present invention relates to a toy cash register which has means for indicating the amounts entered into the register. Numeral sliders are located next to each other in the housing and are movable by means of levers which are actuated by depressed keys. A clearance track serves to clear the indicated values and cooperates with a holding arrangement for the levers to lock the indicated amounts in place.

The production of a toy cash register of the foregoing species required in the past a large number of movable parts, in view of the desire to simulate an actual register. The assembly of toy cash registers in the past was exceptionally complex. The requirement of assembling a large number of different individual parts does not only result in a costly arrangement, but it also incurs the possibility that the wrong parts may be interchanged or that malfunctions may be built in to the register which may seriously affect its operation.

Accordingly, it is an object of the present invention to provide a cash register which may be assembled in a simple manner from substantially few individual parts or groups of elements.

It is also an object of the present invention to provide a toy cash register in which the parts may be easily and economically fabricated.

It is also an object of the present invention to provide a toy cash register in which the operating parts are readily accessible.

## SUMMARY OF THE INVENTION

The objects of the present invention are achieved by providing a toy cash register in which an injection molded plastic integral unit forms a base, two side walls, a head plate and a front wall surrounding frame, a face plate mounted in the frame and having the entire indicating mechanism attached to its lower side. This indicating mechanism may be mounted in place through an opening of the rear wall of the frame.

It is a particular feature of the present invention that the individual parts of the indicating mechanism form a separate part mounted to the face plate. In this manner, the face plate with the indicating mechanism may be produced as a prefabricated part which may be assembled in final form through a manual step and into the frame. As a result of this arrangement, the fabrication of the register is considerably simplified, and the possibility of malfunctioning is considerably avoided. This is due to the condition that the mounting of the indicating mechanism onto the face plate is essentially simpler than assembling in place the many parts within the interior of the register housing which surrounds the face plate.

The face plate can be advantageously supported by guide ribs on the side walls and can be connected to the frame by means of a tilt arrangement.

For the purpose of retaining the rear wall and further supporting the inserted face plate, the present invention provides that the rear wall has hooks which project into corresponding cutouts of the face plate. These hooks serve to avoid loading down of the tilt arrangement by the face plate.

To connect the numeral slider or counting slider with the levers, it is advantageous to provide that the guide sleeves of an upper horizontal section of the face plate

have movable numeral or counting sliders in the lower region where cutouts are present. Radial hooks bent downward project into these cutouts and are formed from two-armed levers. The arrangement is such that even with substantially identical numeral or counter sliders, levers and associated keys in two rows provide indicating positions which are all arranged identically in a row.

For purposes of simplifying the design, the guide sleeves of the counter slider should not be formed directly from the face plate. Instead, it should be made of one piece on the lower side of a horizontal section of the face plate. This one-piece unit can then be mounted or attached to the face plate.

In order to achieve identical indicating position even though there are two rows of keys and levers which are constructed as identical elements, the present invention provides that the levers be held in a bearing plate which is displaced from the longitudinal axis of the levers beneath the face plate by means of offset shafts formed on the lower side of the face plate. The keys are box-shaped having a projecting side wall serving as an actuating tongue which is rotated by 180° in the guide sleeves of both rows of keys, so that the actuating tongues of the keys of both rows are facing each other.

To particularly simplify the locking in place of the levers and thereby the counting sliders in their upper positions by actuating the associated keys, there is provided in accordance with the present invention, that a clearing frame in the form of a one-arm lever which is spring loaded, has rows of posts which serve to block the return for the ends of the lever arms at the keys. Upon actuation of a key, the associated lever is pivoted downward and toward the associated post of the clearing frame. The latter is spring loaded and when released returns to its initial position as a result of the spring action and operates as the return block.

The required spring loaded tilting of the clearing frame with respect to the face plate and thereby the levers can be achieved in a particularly simple manner by providing the clearing frame with stop posts having radial bearing surfaces. The clearing frame is hung at the face plate by means of spring loaded posts which are formed on the face plate. The radial bearing surfaces roll on the spring loaded posts.

To actuate the clearing frame a clearing key may be provided through a cutout of the face plate so that this key projects upward. This clearing key can be box-shaped and lie opposite the wall of the clearing frame on one of the stop posts.

A further improvement in the construction and assembly of a toy cash register is obtained by providing a viewing window made of transparent material for the purpose of indicating the register amounts. This window is between a horizontal section of the face plate through which the counting sliders pass and the head plate of the frame. With this arrangement, it is possible to avoid the use of particularly rigid means for the window as in the conventional arrangements.

An additional simplification of the construction of a toy cash register can be achieved by providing an intermediate base which may be inserted into the frame from the rear. The intermediate base has lower panels for guiding a conventional drawer along the sides thereof. When the drawer is released, a lock moves the drawer outward under spring action. This lock serves to hold the drawer in closed position when not re-

leased. To prevent the drawer from falling out at the front, a nose portion is formed on the under side of the intermediate base for the purpose of cooperating with a spring loaded tongue on the drawer. The provision of a nose portion against a spring loaded tongue, in this manner, makes it possible to build together the drawer and the intermediate base, since when the drawer is inserted, the spring loaded tongue is depressed downward by the nose portion.

There is provided moreover, in accordance with the present invention, a bell-shaped element which is actuated by a lever upon movement of the drawer. Heretofore, this bell-shaped element was attached on the intermediate base and under the associated lever on the drawer. This made it particularly difficult to form the intermediate base on the register as an integral piece. Accordingly, the present invention provides that the lever associated with the bell and attached to the drawer, together with the bell-shaped element, are movable in two planes. The intermediate base has an associated abutment provided with an inclined running edge at the front and vertically in the rear. When the drawer moves outward, the lever associated with the bell-shaped element pivots rearwards so that it abuts the bell-shaped element. When the drawer is again closed, the lever associated with the bell-shaped element is pivoted downward by abutting against the running edge, whereby this lever returns to a vertical plane and thereby does not actuate the bell-shaped element.

It is particularly advantageous when predetermined parts, in accordance with the present invention, are made of injection molded plastics material.

The novel features which are considered as characteristic for the invention are set forth in particular in the appended claims. The invention itself, however, both as to its construction and its method of operation, together with additional objects and advantages thereof, will be best understood from the following description of specific embodiments when read in connection with the accompanying drawings.

#### BRIEF DESCRIPTION OF THE DRAWING

FIG. 1 is a perspective view of a cash register without the drawer and in the position where the face plate is being inserted in accordance with the present invention;

FIG. 2 is a vertical sectional view taken along line II—II in FIG. 1;

FIG. 3 is a sectional view taken along line III—III in FIG. 1, and substantially parallel to the section of FIG. 2;

FIG. 4 is a bottom view of the face plate;

FIG. 5 is a bottom view of the face plate of FIG. 4 when the indicating mechanism is mounted in place in accordance with the present invention;

FIG. 6 is a perspective view of a drawer with a bell-shaped element and associated lever arrangement;

FIG. 7 is a perspective view of a register key.

#### DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring to the drawings, the register shown therein has a frame 1 made of an integral member from injection molded plastics material. The register, furthermore, has a base 2, two side walls 3 and 4, a head plate 5, a frontal wall 6, a face plate 7 which may be inserted as a separate member without losing any of the indicat-

ing mechanism, an insertable intermediate base 8, a drawer 9 which serves to retain the cash, and a rear wall 10.

The insertion of the face plate 7 with the indicating mechanism arranged on it in a manner to be described below, as well as the insertion of the intermediate base 8 are achieved by the open rear side of the frame 1 prior to moving in place the rear wall 10. The drawer 9 is inserted from the front as the last part. A coiled spring 11 is connected at one end to a hook 12 at the base 2. A spring tongue 13 formed on an intermediate base 8, cooperates with a pre-tensioned locking key 14 with an arm 15 and a recess 16 for locking the drawer 9 in place.

The intermediate base stands on a base 2 of the frame 1, with two lower panels 17, which form a side guide for the side walls 18 of the drawer 9. To prevent the intermediate base 8 from moving upwards, the side rims of the intermediate base 8 with shoulders 18A grasp the side walls 3 and 4 of the frame 1.

The rear wall 10 is hung with hooks 19 in recesses 20 of the face plate and is screwed to the lower side of the base 2 of the frame 1 by means of a bent lip 21. These hooks 19 serve to perform a holding function for the rear wall 10 while simultaneously supporting the face plate 7 from the rear. As a result, the front part of the face plate 7 is not loaded down.

This front or tilted part of the face plate 7 has two elements with V-shaped spring arms 23 directed outward. These spring arms 23 prevent the removal of the face plate 7 after being pressed in the slot 24 of a flange 25 of the frontal wall 6. In this position, the spring arms 23 are directed outward. The face plate 7 rests on guide ribs 26 of the side walls 3 and 4, as well as the flange 25. As may be seen from FIG. 1, the face plate 7 may be inserted into the frame 1 in an essentially horizontal manner through the rear edges of the guide ribs 26. After tilting downward into the inclined position, the face plate is secured in place by the tilt holding arrangement.

On the lower side of the upper horizontal section 27 of the face plate 7, is a guide sleeve 28 made of a one-piece injection molded plastic material. This guide sleeve 28 is held in place for the counting slider 29 in which a horizontal post 30 of the guide sleeve 28 is moved out of the section 27 and the curved element 31 which is pressed out. Spring hooks 32 grip the edge of the horizontal section 27 at the same time. The guide sleeve 28 forms together with recesses 33 of the section 27, the guide arrangement for the counting slider 29.

The rear side wall 36 of the counting slider 29 is extended downward into a slot 35 and has at its lower end region a recess 37 into which extend hooks 38 of the two armed pivoting lever 39. These hooks 38 are bent downward in a radial manner. The levers 39 are pivoted on the bearing plate 41 of the lower side of the face plate 7. The bearing plate 41 is held in slots 40. The pivoting axes of each lever 39 is held in place by means of a rigid post 42 and a spaced spring tongue 43 bent from the lever 39. After insertion of the counting slider in the direction of the arrow P in FIG. 2, the spring tongue 43 jumps upwards so that the bearing plate 41 serves as an abutment between the tongue 43 and the post 42.

In assembling the lever 39, push buttons 44, 45 and counting slider 29, the weight of the arms of the counting slider and lever 39 as well as the counting slider 29

provide a lever moment or torque which is larger than the push button arms of the lever 39 and the push buttons 44, 45 which load down these arms. As a result, no springs are required for returning into their initial positions, the push buttons 44, 45 and the lever 39.

The bearing plate 41 has alternately arranged offset pivot supports which serve to partly to compensate for the different operation of the two rows of keys or push buttons 44 and 45. Even though there are different connecting points of the keys 44 and 45 on the fully identical levers 39, identical indicating positions are all obtained in a row on the counting sliders 29.

The box-shaped keys 44 and 45 serve the same purpose in that they are extended downward and face side walls of an actuating tongue 46.

For guiding the keys 44 and 45, guide sleeves 47 and 48 are formed on the face plate 7. The guide sleeves 47 and 48 are provided with slots 49 and 50 at the base. The actuating tongues 46 are constructed in an advantageous manner when in the form shown in FIG. 7, where they are designed as V-shaped spring hooks, which upon insertion through the slots 49 and 50, are pressed together and then spring apart again. As a result the keys 44 and 45 are held in the guide sleeves 47 and 48.

A box-shaped clearance frame 51 is provided for locking the lever 39 in its actuating positions and for clearing the indicated amount. This clearance frame 51 is hung on spring posts 54 formed on the face plate 7 with the aid of its front wall 52 and its holding posts 53. The holding posts 53 have radial bearing surfaces 55 which roll in the spring post 54 through actuating the clearance key 56 upon tilting of the clearance frame 51. On the interior of the front wall 52 are formed posts 57 spaced from the keys 44. The posts 57 serve as return stops or blocks for the keys 44 on the lever 39. Tongues 59 spaced from the front wall 52 over a transverse post 58 serve similarly as return blocks for the keys 45 associated with the lever 39.

Upon depressing a key 44 or 45, the clearance frame 51 or spring post 59 are tilted from their corresponding lever 39, and snap upon release back into their original positions, whereby the lever 29 can no longer return to its original position. (see FIG. 2). In the embodiment shown, the clearance key 56 is a separate element which is guided in a guidance arrangement 60 of the face plate 7. At the same time, the clearance key 56 can also be formed on the clearance frame 51.

The keys 44 and 45 lie in different parallel rows. The counting sliders, on the other hand, are all in one row. Next to this arrangement and the displaced retention of the lever 39, the bent hook 38 of the lever 39 is of particular significance. By means of a predetermined curvature of this hook 38, assurance is had that even though precisely the same keys 44 and 45 are used and the same counting sliders 29 and levers 39 are provided, the keys 44 and 45 will not be displaced differently in the upward direction of the counting slider 29. Instead, upon actuation of a key 44 of the associated counting slider 29, this key will be moved out by the same amount upwards through the section 27 as will a key 45 associated with counting slider 29. Without the provision of the curved hook 38 in accordance with the present invention, the solution could be obtained only so that the counting sliders are moved out in the upward direction by different amounts. These amounts, furthermore, are larger than those which correspond to

the indicating position, and the counting sliders are first held in a predetermined position upon the downward slide of the return locking element formed from the clearance frame 51. This arrangement is, however, undesirable. In the illustrated case, the abutment of transfer post 61 in the extended rear wall 36 is prevented upon further depression of keys 44 and 45 and thereby considerable tilting of the lever 39 and lifting of the counting slider 29 through the base 34 of guides 28 is also prevented.

The counting sliders 29 have imprinted on them the values which correspond to the keys 44 and 45 on their fronts and rears. With this arrangement, these counting sliders 29 may be read from the front by the person using the keys as well as by the customer on the back side. The rear wall 10 has, for this purpose, a cutout 62. At the same time, a box 63 is made of transparent material and is arranged between the horizontal section 27 of the face plate 7 and the head plate 5 of the frame. This box 63 serves to provide a viewing window.

Upon actuation of the locking key 14 of the drawer 9 against the action of the intermediate base 8 with its formed spring tongues 13, the arm 15 releases the recess 16, whereby the drawer 9 springs towards the front as a result of the action of the spring 11.

To prevent the falling out of the drawer 9, there is provided a spring tongue 77 which abuts an element, not shown on the intermediate base 8. Upon insertion of the drawer 9 during assembly, this abutment is avoided. When the drawer 9 jumps forward, (see FIGS. 2 and 6), the nose portion 64 of the lever 65 abuts against the vertical rear edge 66 of an abutment 67. The lever 65 is parallel to the base of the drawer and is movable vertically. The abutment 67 is on the intermediate base 8 and is deflected rearwards until released when being bent. In this manner, the bell-shaped element 68 fixed in the drawer 9 is abutted upon return of the abutment 67. When sliding back the drawer and the locking arrangement 15, 16 is automatically applied, the nose 64 of the lever 65 glides on the inclined frontal edge 69 of the abutment 67 upon tilting of the lever 65 vertically with respect to the base of the drawer 9 in the downward direction. Upon release again of the lever 65, the bell-shaped element 68 is not again struck.

To receive a cash register paper roll, a cutout 70 is provided in the face plate 7 for the purpose of inserting a cartridge or magazine 71 (FIG. 3). The cartridge or magazine 71 is held in place in the cutout 70 with the aid of a hook 72, projection 73 as well as side post 74 on the sides of the cutout 70. The path of the paper strip is shown in FIG. 3 by dashed lines. A saw-tooth tear-off edge for the paper strip is denoted by the reference numeral 75. In order that the magazine 71 does not become tipped upon tearing off a strip of the paper on the edge 75, a post 76 is provided which is formed on the intermediate base 8 at the base of the paper roll.

The printing of the paper is achieved advantageously after the counting sliders 29 are inserted into the guiding sleeves 28 formed of an integral or one-piece member. The imprinting of the keys with corresponding values is also best achieved first after being mounted in place in the face plate. With this arrangement, the assembly of the arrangement is considerably simplified, since upon insertion of the keys 44 and 45 as well as the counting sliders 29, it is not necessary to observe

whether the parts with their designated values are inserted into their correct openings.

Without further analysis, the foregoing will so fully reveal the gist of the present invention that others can, by applying current knowledge, readily adapt it for various applications without omitting features that, from the standpoint of prior art, fairly constitute essential characteristics of the generic or specific aspects of this invention, and therefore, such adaptations should and are intended to be comprehended within the meaning and range of equivalence of the following claims.

What is claimed is:

1. A toy cash register comprising
  - a molded plastic frame having a base, two side walls, a head plate extending between upper portions of said two side walls, a front wall and means defining a frame opening above said front wall;
  - a face plate mounted in said frame opening;
  - a rear wall member mounted on said frame and closing the latter from the rear;
  - a plurality of depressable keys slidably mounted on said face plate;
  - a plurality of numeral slider means mounted on said face plate and movable into register positions to indicate the register amounts;
  - lever means operatively connecting associated slider means and keys to effect movement of said slider means to said register positions upon depression of said keys;
  - pivotal means pivotally mounting said levers on said face plate; and
  - clearance frame means tiltably mounted on said face plate and operable to engage said levers to temporarily retain the latter and their associated numeral slider means in said register position and to effect release of said levers;
  - said molded plastic frame and face plate being constructed and arranged such that the face plate with said keys, lever means, and clearance frame means mounted thereon is insertable as an assembled unit into said molded plastic frame.
2. A toy cash register according to claim 1 wherein said side walls of said frame include guide rib means on which said face plate is supported, said face plate being supported in an inclined position, and cooperable means on said front wall of said frame and said face plate to secure the latter in said inclined position.
3. A toy cash register according to claim 1 wherein said rear wall is provided with hook means, said face plate having cutouts for receiving said hook means to thereby effect a securement between said rear wall and said face plate.
4. A toy cash register according to claim 1, wherein said face plate has an upper horizontal section, a guide sleeve mounted on said horizontal section, said guide sleeve having means defining cutouts in the lower end thereof, said slider means being slidably mounted in said guide sleeve and having lower end portions passing through said cutouts, said plurality of slider means being constructed substantially identical to one another and being arranged in a single row, said lever means being pivotal about two different axes, each of said lever means having arcuate end sections engageable with said lower end portions of said slider means to provide the same register positions for all of said slider means.

5. A toy cash register according to claim 4 wherein said guide sleeve is formed as an integral unit, and means for mounting said guide sleeve on the bottom side of said horizontal section of said face plate.

6. A toy cash register according to claim 5 wherein the moment arm defined by the weight of said slider means and the weight of that portion of the lever means extending from the pivot axis of the lever means to the slider means is greater than the moment arm defined by the weight of said keys and the weight of that portion of the lever means extending from the pivot axis of the lever means to the keys.

7. A toy cash register according to claim 1 wherein said pivotal means for pivotally supporting said lever means includes a bearing plate supported on said face plate, said bearing plate having alternatively arranged pivot supports, said lever means being pivotally mounted on said bearing plate for pivotal movement about two different pivotal axes.

8. A toy cash register according to claim 7 wherein each of said lever means has a fixed abutment and a bent tongue, said pivot supports being arranged between said fixed abutment and bent tongue.

9. A toy cash register according to claim 1 wherein said keys have an upper part in the form of a box-shape and a lower part in the form of an actuating tongue, said actuating tongue forming a continuation of one side of said box-shaped upper part, said keys being arranged in two transverse rows such that said actuating tongues in each row face each other.

10. A toy cash register according to claim 9 wherein said face plate is provided with guide sleeves in which said keys are slidably mounted, said guide sleeves having means in the lower ends defining slots, said actuating tongue being constructed in the form of a V-shaped leaf spring having a width greater than the width of said slots in said guide sleeves, whereby said leaf spring precludes withdrawal of said keys from said guide sleeves.

11. A toy cash register according to claim 1 wherein said clearance frame means includes rows of stops engageable with said lever means to temporarily retain said lever means and their associated numeral slide means in said register position.

12. A toy cash register according to claim 11 wherein said face plate has posts extending from the bottom thereof, and bearing means on said posts and said clearance frame means tiltably supporting said clearance frame means.

13. A toy cash register according to claim 11 including a clearance key slidably mounted on said face plate and operable to effect tilting of said clearance frame means, said clearance key being mounted on said face plate between said plurality of depressable keys and said head plate.

14. A toy cash register according to claim 1 including a transparent viewing window underlying said head plate and through which said numeral slider means may be viewed when in their register position.

15. A toy cash register according to claim 1 including an intermediate base insertable from the rear of said molded plastic frame and having lower guide panels, a cash drawer in said base of said molded plastic frame, said cash drawer being slidably guided by said guide panels, and locking key means operable to selectively retain and release said cash drawer in said base.

16. A toy cash register according to claim 15 including a spring tongue on said cash drawer, said spring

tongue being adaptable to engage an abutting part of said intermediate base to prevent said cash drawer from falling or being pulled all the way out of said base.

17. A toy cash register according to claim 15 wherein said locking key means includes a locking key element, a leaf spring mounted on said intermediate base of returning said locking key element to a normal position after the locking key element has been depressed to release said cash drawer.

18. A toy cash register according to claim 1 including a bell mounted on said cash drawer, a lever mounted on said cash drawer, a nose portion on said lever, an abutment on the underside of said intermediate base

and arranged to be engaged by said nose portion of said lever to temporarily displace and then release the lever so that the latter strikes said bell as said cash drawer is moved.

19. A toy cash register according to claim 1 wherein said face plate is provided with means defining a cutout, a cartridge underlying said cutout for supporting a paper roll, and means defining a tear-off edge to facilitate tearing strips of paper from said paper roll.

20. A toy cash register according to claim 19 including means for supporting said cartridge against tipping.

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