The present invention relates to a computer-controllable apparatus of the type mentioned in the precharacterising clause of Claim 1.

Chip cards which contain memory components and processor components are already known (see ISO standard 7816). These generally interact with the controller by, for example, on the one hand passing certain information to the controller and, on the other hand, accepting information from the controller and storing it. In this case, the processor has only the task of controlling the memory component. Externally it has no controlling effect.

DE 38 06 771 A1 already discloses an apparatus of the type mentioned in the precharacterising clause of Claim 1 which serves for carrying out payments by electronic means. As chip cards there are provided, for example, a card of the businessman operating the apparatus and the card of a customer who wishes to carry out a payment to the businessman. In the case of the known apparatus, the controller is a component part of the apparatus and is more or less permanently installed in it. Until now, such a controller has been formed in a conventional way by one or more control boards which are fitted in correspondingly elaborate subracks and are connected to the power electronics or the power supply of the apparatus by means of multiway connectors. This conventional type of design is relatively elaborate and voluminous. In particular, however, such conventionally constructed apparatuses are also very inflexible, since exchanging the control boards is more or less tantamount to disassembling the apparatus and is generally not possible without removing parts of the housing.

It is the object of the present invention to provide an apparatus of the type mentioned in the precharacterising clause of Claim 1 which is constructionally simpler and smaller and which is simpler from the control aspect and also can be converted by untrained personnel.

This object is achieved according to the

invention by the features described in Claim 1.

According to the invention, not only are chip cards which interact with a controller permanently installed in the apparatus provided; rather, the controller itself is also designed as a chip card. Chip cards are understood here as meaning memory and/or IC cards as are defined for instance in ISO standard 7816. Such chip cards contain integrated circuits of high constructional density, so that they are produced for example in the format of check cards and can be transported correspondingly easily by anyone, for example in a wallet. Serving to receive such cards are receptacles, into which the cards are generally inserted or put, without having to ensure an exact alignment with plug connectors and having to overcome greater or lesser insert forces, as in the case of circuit boards.

The use according to the invention of chip cards also for the central controlling of apparatuses creates the possibility of such apparatuses being converted or, in the case of a control failure, repaired by the user himself in a simple way. In addition, it may be advisable or useful to be able to put the apparatus out of operation by removal of the computer card, for instance in order to prevent unauthorised use of the apparatus. This possibility is also facilitated greatly by the use of a single chip card for the controller.

The computer card contains at least one central processing unit (CPU), a read-only memory (ROM) for storing programs, a main memory (RAM) and an input/output component (I/O component), so that it has all the essential elements of programmable controller apart from the power electronics and the power supply.

The power and drive electronics and the power supply unit are preferably permanently installed in the apparatus; these are generally large and heavy components which should not be accommodated on such a chip card in order not to diminish the advantages of the latter of a small and easy type of construction. The receptacle has connecting contacts, by means of which the put-in chip

card can be connected to the power and drive electronics.

In a further development of the invention, the apparatus has further receptacles for receiving further chip cards, interacting with the computer chip card; these further receptacles are in each case provided with contact arrangements which are connected to the receptacle of the computer chip card. When further chip cards are inserted, they are automatically connected to the computer chip card.

If peripheral devices are to be connected to the apparatus, according to a further development of the invention it may be provided that at least individual receptacles have, for in each case one of the further chip cards, a contact arrangement which is connected directly to one of the peripheral devices. It can be achieved in this way that individual cards of the further chip cards cannot interact directly with the controller but can only register the data passing to the peripheral device concerned. An application example for this case is described in an illustrative embodiment.

In a further development of the invention, the receptacles for the chip cards are in each case assigned means of protecting the chip cards against removal. These protective means on the one hand prevent the chip cards falling out of the receptacles, for example in the case of transportable apparatuses subjected to vibrations. In addition, the protective means may be designed in such a way that individual cards or all the cards can be installed or removed only by respectively authorised persons. In this case, it may also be provided that different receptacles are protected to differing degrees, as described more precisely in an illustrative embodiment.

In the case of an illustrative embodiment of the present invention, the apparatus is designed as a cash register, one of the further chip cards, interacting with the computer card, carrying data for identifying and logging on a cashier and for switching on the operational function of the cash register (company card). The cashier

logs on at the register by putting in a company card assigned to said cashier. This is on the one hand simpler than the previously usual logging-on by means of an input keyboard, on the other hand input errors are ruled out.

In a further development of the apparatus designed as a cash register, there is provided a further chip card, which carries data for identifying a manager superior to the cashiers and is designed for storing and processing data of relevance to the manager (manager's) card. This manager's card for example remains in the apparatus during the entire business day and registers all the actions of different cashiers. At the end of the business day, the manager can remove the chip card assigned to him and evaluate the data concerning his cash register.

In some European countries, the law stipulates that cash registers must be provided with separate unmanipulatable fiscal memories, which store data of fiscal relevance. According to a further development of the apparatus according to the invention, designed as a cash register, it is therefore provided that one of the further chip cards carries and stores data of fiscal relevance.

The degrees of protection for the company card, the manager's card and the fiscal memory differ in the way described above, so that for example the company card is protected only against falling out, the manager's card is additionally protected by a lockable blocking device and finally the fiscal memory has further protections and, if appropriate, a lead seal which may be opened only by authorised persons.

Further details, advantages and features emerge from the claims, the description and the drawing, to which you are expressly referred with respect to the disclosure of all details not described in the text. Various illustrative embodiments of the invention, which are described in more detail below, are represented in the drawing, in which:

Fig. 1 shows a block diagram for an apparatus

with a controller designed as a chip card;

Fig. 2 shows a receptacle for receiving a plurality of chip cards;

Figs 3 to 5 show a register drawer for a cash register with a receptacle for a chip card.

In Figure 1 a cash register is shown in block representation. The control electronics are arranged on a chip card 100. This contains a CPU 102, which interacts in a way known per se for data processing systems with a ROM memory 104 for programs, a main memory 106 and an input/output component 108. At least the input/output component 108 is plug-connected to mating contacts 114, 116 of a sliding guide (not shown) by means of a number of edge connectors 110, 112 of the chip card 100.

Connected to the input/output component by means of the contact group 110, 114 are power or drive electronics 118, which contain drive circuits known per se for the electromechanics of a register printer 120, of customer and operator display devices 122, customer and operator keyboards 124, a money drawer 126, a data transmission device 128 and other peripheral devices customary on a cash register, such as bar-code or credit-card readers.

A power supply device 130 supplies the power and drive electronics 118 with the required voltages, which is [sic] also passed on from there to the peripherals 120 to 128 and to the chip card 100.

Connected to the input/output component 108 of the chip card 100 are a company card 132, by means of the contact group pairs 112, 116, and a manager's card 134, by means of the contacts 112, 116 and 121, 123. A chip card 138 carrying a fiscal memory 136 is connected directly to the printer 120 by means of contacts 125, 127, in order for example to comply with Italian law. In this way, the chip card 138 stores all the data which are also intended for the print-out. The chip card 138 likewise receives the power supply via the printer 120,

so that any direct connection to other control components is avoided.

In Figure 1 is symbolically represented that the chip cards 100, 132, 134, 138 are protected differently by the respective bar 9 in their sliding guides. The chip card 100 carrying the control electronics is protected by a lock 45' and a lead seal 62' against unauthorised removal. In the present case, the lead seal 62' can be released and set only by the customer service technician of the register manufacturer. In this way, manipulations or exchange of the card 100 are ruled out. This may be important for guarantee claims. However, it may also be envisaged that the user of the apparatus has the possibility of himself removing the computer chip card 100, in order for example to put the apparatus out of action, configure it differently from computer aspects, repair it etc.

The company card 132 is held only by its bar 9, the manager's card 134 is protected against removal by its bar 9, provided with a lock 45". The memory fiscal card is protected by a lock 45 and additionally by a lead seal 62, which may be released for example only by an official from the Finance Ministry.

Figure 2 shows a diagrammatic perspective representation of a device for receiving differently protected cards. The reference numerals 9, 45 and 62 used in the case of this illustrative embodiment correspond analogously here to the reference numerals 9, 45, 45', 45", 62 and 62' used in Figure 1.

In Figure 2, a device 1 for receiving circuit carriers in card form, in particular cards 2, 3 and 4 such as "integrated circuit cards with contacts" in accordance with ISO Standard 7816 or else cards with contactless signal coupling, which are protected to differing degrees, are diagrammatically represented. The cards may be designed as so-called memory cards. The device 1 has a holder 5 with three sliding guides or frames 6, 7 and 8, which according to Figure 2 have in each case a left-hand side wall 11, provided with a

clearance 10, and are designed in the form of a slot. The right-hand side wall 12, not shown in any more detail in Figure 2, may be designed similarly to the left-hand side wall 11 or have a continuous side surface. In the continuous side surface there may be provided close to its rear edge, in the inserting direction, an arcuate clearance (not shown) for better grasping of a card.

According to Figure 2, the frames 6, 7 and 8 of the holder 5 are connected to one another by means of a threaded bolt (not shown), which is led through a bore 14 which is provided on the front, upper end, in the inserting direction, of each frame. Fitted onto the threaded bolt in each case between two frames is a spacer 13, which keeps the frames parallel to one another and at a distance. A further threaded bolt may also be provided on the front, lower end, in the inserting direction, of each frame (not shown in any more detail) and inserted into a corresponding bore 15. For an improved side stability in the front region, the frames of the holder may also be connected to one another at their rear end in the inserting direction (not shown), it being possible for such holders or spacers to be fitted both on the upper and lower end in Figure 2, in the drawing, of each frame, but also exclusively at the top or bottom. Thus, with the aid of the threaded bolts and spacers 13, any number of frames can be connected next to one another and parallel to one another to form a compact holder 5. The screw fittings may also be provided, however, in a region between the front and rear end, in the inserting direction, of the respective frame.

According to Figure 2, the cards 2, 3 and 4 are located in the frames 6, 7 and 8, the device 1 also having a locking mechanism 16 which is designed as a holding device and with the aid of which the cards are held in the slot-shaped sliding guide for the purpose of fixing their pushed-in operating position and are protected against removal. According to Figure 2, the locking mechanism 16 has three bars 20, 21, 22, which are denoted altogether by 9, can in each case be moved out of

a locking position, blocking the card in its operating position, into an unlocking position and vice versa and are held with the aid of a holding device 23 in their locking position (see figure). The holding device 23 may also be omitted if the respective bar for example consists of a flexible material and is firmly connected to its sliding guide or is formed in one piece with the latter or is held in its locking position due to the force of gravity. In the case of this embodiment, the bar is preferably fastened on the upper side of the holder.

Each bar of the locking mechanism 16 is a lever 20, 21, 22 which extends parallel to the inserting direction of the card 2, 3, 4 and can pivot about a pivoting axis 24 through the plane defined by the plane of the card. Each lever 20, 21, 22 is mounted underneath the frame 6, 7, 8 in such a way on the holder 5 that it is arranged in a clearance 25 of the frame, the lower edge 26 of each frame aligning with the lower edge 27 of the respective lever. Each lever 20, 21, 22 has a catch 31, which is arranged close to its free end 30 and which engages behind the rear edge 32, 33, 34, in the inserting direction, of each card 2, 3, 4 in its operating position. In this case, according to the figure, the catch encloses the lower corner of each card, so that the latter is protected in its operating position. Each catch 31 tapers towards the free end 30 of the lever 20, 21, 22 and has a knurling 35 on its side pointing towards the free end of each lever.

Each lever 20, 21, 22 of the locking mechanism 16 is prestressed into its locking position, shown in the figure, with the aid of the holding device 23. The holding device 23 is a spring 36, the one end of which 37 acts on the lever 20 and the other end 38 of which can be fastened, for example, on the frame 6 of the holder 5, is thus supported on the holder 5. In Figure 2, the holding device 23, designed as spring 36, is shown just in the case of the left-hand outer lever 20; however, the two other levers 21, 22 have an identical holding device. According to Figure 2, the spring 36 is designed as a

torsion spring; it may, however, also be a tension spring or compression spring. The torsion spring is arranged in the region of the pivoting axis 24 of each lever, there being fitted on the lever 20, 21, 22 and on the holder 5 or the relevant sliding guide a lug 40, 41, respectively supporting one end 37, 38 of the torsion spring. The lug fastened on each lever may also be a plate connected in one piece with said lever (see figure). The spring ends may also be simply inserted in bores provided on the lever and on the holder.

According to Figure 2, the lever 20 is assigned a switch 42, which senses the locking or unlocking position of the lever and indicates this to a data processing system (not shown). The signal emitted by the switch may also be transmitted, for example, to the register electronics of a cash register. Such a switch may also be assigned, however, to the other levers 21, 22. The switch 42 has on its upper side a pivotable clip 43, which bears against the underside 27 of the lever 20. The clip 43 is prestressed in the direction of the lever 20 with the aid of a torsion spring (not shown). The torsion spring of the clip 43 may also be designed to be strong enough to keep the lever in its operating position, represented in Figure 2. In this case too, the holding device 23 designed as spring 36 may be omitted. Instead of the switch 42, some other signalling device may also be provided for the position of the lever, for example a light barrier.

The switch may be a microswitch which indicates, for example, to the register electronics of a cash register the presence and/or imminent removal of a card. Such a card may, for example, be a company identity card of a user, for example of a cashier.

In addition to the bars designed as engageable levers 20, 21, 22, the locking mechanism 16 is also assigned a lockable blocking device 44, which according to Figure 2 acts on two levers 21, 22 and has a sliding bar 47 which can be moved out of a blocking position (see figure), preventing a movement of the relevant lever,

into a release position, releasing a movement of the lever, and vice versa. On the blocking device there may be fitted a switch similar to the switch 42, which indicates its locking or unlocking state. The switches fitted on the bars 20, 21, 22 can then be omitted.

In addition, for example in one embodiment (not shown), there may be provided a pivoting arm which is provided with a lock and which, in the locking position of the respective bar, can be moved into and out of its pivoting range. Such a pivoting arm may be assigned to each individual bar in lever form. The pivoting arm may in this case have a form resembling the pivoting arm 46, provided with a lock 45, in the figure. In the case of this embodiment, the lock is arranged approximately in the region between the free ends of the lever in such a way that the upper edge of the lock is arranged close to the plane running through the lower edge of the lever. In the blocking position, the pivoting arm is pivoted in such a way into the pivoting range of the lever held in its locking position that the pivoting arm is then arranged approximately horizontally.

In the case of the embodiment shown in Figure 2, the blocking device 44 comprises the sliding bar 47 with a cam profile having cams 49 which are assigned in each case to individual bars 21, 22 and which, in the locking position of the respective bar, can be moved into and, for unlocking, out of its pivoting range. The movement of the cam profile 47 takes place by means of an actuating device 48, which is designed as a displaceable cam pusher, has the pivoting arm 46, provided with the lock 45, and a pin 51, connected to the cam profile 47, and on which the pivoting arm 46 acts. The pivoting arm 46 has at its free end, i.e. opposite from the lock 45, an elongate clearance 50. The elongate clearance may also be designed as a long hole or guide slot. The pin 51, connected to the cam profile 47, engages in the elongate clearance 50 of the pivoting arm 46. By a pivoting movement of the pivoting arm in the direction of the arrow A, a displacing movement of the pin 51, and

consequently of the cam profile 47, in the direction of the arrow B takes place. The displacing movement of the cam profile 47 may be limited by long holes 52, which are made in the sliding bar and into which guide lugs (not shown) engage.

According to Figure 2, the sliding bar 47 is arranged and designed so as to act simultaneously on the levers 21, 22, in which arrangement, adjoining the respective cam 49, the cam profile forms a clearance 53, 54, the respective width of which corresponds to at least the width of the free end of each bar (lever) and the depth of which corresponds to at least the engaging length of lever and card or to the locking displacement of the relevant bar, to be more precise to the engaging length between the catch 31 and the respective card. According to the embodiment represented, the cam profile does not act on the left-hand lever 20, so that the latter can be actuated, i.e. pivoted into its unlocking position, irrespective of the position of the cam profile. The cam profile 47 may, however, also be designed so as to act on all the levers, so that in this case three cams 49 and clearances have to be provided.

According to the two previously described embodiments, the blocking device 44 is pivotable (first embodiment) or displaceable (second embodiment) transversely to the inserting direction of the cards, the pivoting axis of the pivoting arm 46 in the case of the second embodiment lying below that of the first embodiment and below the cam profile 47. As a result, in the case of a displacing movement of the cam profile 47 in the direction of the arrow B, the pivoting arm 46 moves out of a position inclined to the left, according to the figure, shown by solid lines, via its upper dead centre position into a position inclined to the right, shown by broken lines.

According to Figure 2, the right-hand card 4 is assigned a further bar 55, which essentially is constructed similarly to the bars designed as levers 20, 21, 22 and is arranged opposite the lever 22 on the holder 5.

As a difference from the bars 20, 21, 22, the bar 55 has in its central region an approximately rectangular projection 56 which is connected in one piece with it, is provided with a through-bore (not shown) and is a small distance opposite a short leg 57 of an L-shaped angle 60, the short leg 57 of the angle 60 likewise having a through-bore 62, which aligns with the through-bore of the projection 56. Into these bores there can be inserted a locking bolt (not shown), which can be protected against unauthorised removal by a lead seal. The long leg 61 of the angle 60 is undetachably connected to the holder 5.

The individual frames of the holder may be designed symmetrically with respect to their longitudinal axis running in the inserting direction, so that each frame may also have on its upper end a clearance comparable to the clearance 25. Accordingly, lugs or pins for holding one end of a spring may also be provided on this end. In conjunction with the spacers 13, consequently a structural assembly for a device for receiving memory cards is obtained. It is furthermore possible to provide the levers 20, 21, 22 not on the underside, as shown in the figure, but on the upper side of the holder (in this position, the holding device can be omitted) and to provide the lead-sealed connection between the lever 55 and the angle 60 for example on the underside of the holder 5. It is also conceivable to arrange the levers 20, 21, 22 and the abovementioned lead-sealed connection on the same side of the holder 5 or to assign the lead-sealed connection additionally to at least one of the levers 20, 21, 22. On the underside and/or upper side of each frame 6, 7, 8 there may be arranged between the pivoting axis 24 and its end pointing towards the lever a vertically extending projection which can engage in a correspondingly shaped clearance of the lever and guides the vertical pivoting movement of each lever in such a way that horizontal displacements in the direction of the arrow B or in the reverse direction are ruled out. For the sake of

simplicity, contact points and signal transmitting elements of the cards and of the assigned frames are omitted in the drawing. The lead-sealed bar 55 may be provided on a card which is additionally protected by one of the levers 20, 21, 22, the possibility existing of protecting one of these last-mentioned levers additionally by the blocking device 44. The further bar 55 with the lead seal 62 may, however, also be provided on a memory card which is locked just with the aid of a lever which is not additionally protected by the blocking device 44, such as for example the lever 20. Just like the bars or levers, the blocking device may also be arranged on the upper side of the holder. The individual levers 20, 21, 22 may be fastened on the holder 5 in the region of their pivoting axis 24, for example by a bolt secured in the conventional way.

The operation of the device for receiving memory cards is described in more detail below.

First of all, the sliding bar 47 with the cam profile is adjusted by means of a key 63 and the lock bar 46 in the direction of the arrow B until the lever 22 can also be adjusted out of its locking position, shown in Figure 2, into its unlocking position. At this time, the further bar 55 is not yet lead-sealed to the angle 60. Subsequently, the card 4 is inserted into the frame 8 of the holder 5, the lever 22 and the bar 55 being pivoted into their respective unlocking position. With the card 4 completely inserted, the lever 22 and the bar 55 snap back and consequently fix their locking position. Then the further bar 55 can be lead-sealed by a person authorised to do so.

Then the card 3 is inserted into the sliding guide of the frame 7 until the lever 21 again snaps back into its locking position. By subsequent turning of the key 63 anticlockwise, i.e. counter to the arrow A, the cam profile and the pivoting arm 46, represented by broken lines, are displaced in the direction of the arrow C, i.e. to the left, until the clearances 53, 54 neighbouring the cams 49 are arranged between the individual

levers. The respective cams 49 are then arranged directly below the lower edge of the levers 21 and 22, so that a pivoting movement of these levers into their unlocking position is not possible. The key 63 can then be withdrawn and handed to a supervisor.

The memory card 2 can be inserted at any time into the sliding guide of the frame 6 and withdrawn from it by a downwardly directed pressure on the free end of the lever 20 to overcome the force of the holding device 23. This illustrative embodiment consequently shows cards which are protected to varying degrees. Such an arrangement is preferably used in cash registers, the card not protected against removal by the blocking device 44 representing, for example, the company identity card of the cashier (company card). By means of this card, the cashier logs on at the register and activates the operating functions of the register by means of the integrated circuits arranged on the card. During the course of the cashiering work, the amounts rung up by the cashier concerned are then stored on the card. The second sliding guide 7 may serve for receiving, for example, the manager's card. Recorded on it is information such as, for example, the sequence of the cashiers, daily takings etc. This card can be removed only when the blocking device can be displaced into its release position with the aid of a special key. The key is thus issued only to the manager.

The third slot-shaped guide 8 serves for receiving, for example, a "memory-fiscal card", which can be removed only after opening of the lead seal 62 and, if the latter also acts on the locking device for the memory-fiscal card, additionally by a displacing of the blocking device. The lead sealing can be performed by authorities authorised to do so, such as for example the tax office. It is clear that different information can be stored on the individual cards or different information or signals can be emitted from the individual cards to a system processing these signals.

If one of the cards 2, 3, 4 is to be removed from

the holder 5, the associated bar 20, 21, 22, 55 must be brought out of engagement with the card - if appropriate after opening the blocking device 44. In this case, the switch assigned to the bar is actuated. This has the effect that any data processing operations in progress in the register electronics are properly completed and all the information to be stored and/or the removal time are stored on the card. Since this normally takes place in a fraction of a second, the storing operation is completed before the signal transmitting connection to the card is interrupted by its removal from the holder 5.

With the aid of the locking or blocking, proper storage of all data is also possible in various stages of protection.

In Fig. 3 a register drawer 201 for a cash register, not shown in any more detail, is shown diagrammatically in a pulled-apart representation. The register drawer 201 essentially comprises a money drawer 203 which is guided displaceably in the moving-out and moving-in direction (see arrows A, B in Fig. 4) in a drawer housing 202 and is arranged and designed in such a way that, before operating the cash register, i.e. before each working unit, it can be pushed into the drawer housing 202 and, after operating the cash register is completed, i.e. after each working unit, it can be removed from the drawer housing 202.

As indicated in Fig. 3, the money drawer 203 is supported on a holder 204, which extends part of the way around the money drawer. According to Fig. 3, the holder is a U-shaped profile, into which the money drawer 203 is inserted or pushed-in. The holder 204 is connected in a way not shown in any more detail to guide rails which are fastened in the drawer housing 202 and permit displacing movement of the holder and of the money drawer connected to the latter in the moving-out and moving-in direction (see arrows A and B in Fig. 4). In order to prevent a relative movement between the money drawer 203 and the holder 204 during operating of the cash register, the bottom wall 205 has in its outer side facing downwards in

Fig. 3 a recess 206, the width of which slightly exceeds the width of the holder 204 in this region. As a result, it is ensured that the money drawer 203 cannot be displaced in relation to the holder 204 in its position supported on the holder 204. The inserting of the money drawer 203 into the holder 204 is particularly simply possible from above in Fig. 3. Money drawer 203 and holder 204 may, however, also be releasably connected to each other in another way, for example by catching means.

It is also conceivable for the money drawer 203 to be firmly connected to the holder 204 and for the actual container for receiving money to be inserted loosely into the money drawer. Such a container is known generally as a money tray and is therefore not represented.

According to Figs. 3 and 4, the money drawer 203 has a cover 214, which can be moved between a closing position (see Figure 4), closing the money drawer 203, and a releasing position (cf. also Fig. 3), releasing the money drawer, and in its closing position is releasably locked with the money drawer 203. For this purpose, the cover 214 is guided displaceably on the money drawer 203 by means of a sliding guide 215 and can be locked to the money drawer 203 by means of a locking mechanism 210 (cf. Fig. 4). The sliding guide 215 comprises an L-shaped profile 221, which is attached close to each side edge 216, 217 of the cover 214, on the underside 220 thereof, and which engages around a web 224 formed on the upper end of each side wall 222, 223 of the money drawer 203. The webs 224 begin close to the rear wall 207 and end by a dimension 225 ahead of the front wall 226, in the moving-in direction B of the money drawer 203. If a money tray is used, the webs 224 and the elements 210, 211, 212, described further below, are not attached to the money drawer 203 but to the money tray. In the following, the illustrative embodiment with money tray is not dealt with in any more detail. By the pushing-in of the money drawer 203 into the drawer housing 202, the cover 214 is connected to the drawer housing 202 and by establishing

the locking is releasable from said housing, as will be described more precisely below.

With the money drawer 203 pushed completely into the drawer housing 202 (cf. Fig. 4), the cover 214 can be engaged with the drawer housing 202 with the aid of a catching device 227 and has a block 230, which prevents complete withdrawal of the money drawer 203 when the cover 214 is connected to the drawer housing 202. According to Figs. 3 and 4, the catching device 227 is a catch lever 232 which extends parallel to the direction of movement (see arrows A and B in Fig. 4) of the cover 214, is pivotable in the plane of the cover about a pivoting spindle 231 mounted on the cover and is prestressed into its catching position shown in Fig. 3, i.e. clockwise, by a spring 233. The catch lever 232 is connected approximately in its longitudinal centre to the cover 214 by means of the pivoting spindle 231. According to Fig. 3, the spring 233 is a torsion spring which is arranged in the region of the pivoting spindle 231 and the one end of which 234 acts on the catch lever 232 and the other end 235 of which is supported on the cover 214 by means of a journal 236. However, the spring may also be a tension or compression spring supported on one end of the catch lever 232.

The catch lever 232 is of an elongate design and extends on the underside 220 of the cover 214 virtually over the entire length thereof. The catch lever is surrounded by a channel-shaped covering 237, which is fastened on the underside 220 of the cover 214 and extends from the front end 240 of the cover to close to the cover rear edge 241. The front end 240, in the pushing-in direction of the cover 214, of the catch lever 232 has a catch 242 which, in the position of the cover 214 in which it is pushed into the drawer housing 202 (cf. Fig. 4), engages behind a pin 243 held on the drawer housing 202. In the region of the catch 242 of the catch lever 232, the cover 214 has a recess 244, in which the pin 243 is located when the cover is pushed completely into the drawer housing 202.

The locking mechanism 210 is fitted on the rear wall 207, in the moving-in direction (see arrow B in Fig. 4), of the money drawer 203. According to Figs. 3 and 4, the locking mechanism 210 is a lock bar 212 which is provided with a lock 11 and can be moved between a locking position, blocking a movement of the cover 214, and an unlocking position, releasing such a movement. In the case of the embodiment described above, when the lock 211 is turned with the aid of a key 213 through about 90° (see arrow C in Fig. 3), the lock bar 212 of the locking mechanism 210 can engage in a recess, not shown in any more detail, in the rear region of the cover 214 (dashed representation of the lock bar 212 pivoted upwards in Fig. 3) or engage behind the block 230.

The rear end 245, in the pushing-in direction, of the catch lever 232 extends close to the cover rear edge 241. The locking mechanism 210 is arranged and designed so as to act on the rear end 245 of the catch lever 232, so that the lock bar 212 can, in its locking position pivoted upwards according to arrow C (represented by dashed lines in Fig. 3), act on the rear end 245 of the catch lever 232 (see arrow D in Fig. 3). For this purpose, the rear end 245 of the catch lever 232 protrudes beyond the rear end 246 of the channel-shaped covering 237 by a small amount. This amount corresponds to at least the thickness of the lock bar 212.

According to Figs. 3 to 5, the cover rear edge 241 is designed partly as a block 230 which is bent around toward the money drawer 203 and the width of which is greater than the distance between the cover 214 and the upper edge of the money drawer 203. According to Figs. 3 and 5, in the region of the sliding guide 215, the cover rear edge 241 is not bent around towards the money drawer but serves as a stop against the rear wall 207 of the money drawer 203 when the cover 214 is guided on the money drawer 203. At its upper end in Fig. 3, the front wall 226 of the money drawer 203 has a set-off 247, the length and depth of which correspond to at least the corresponding dimensions of the channel-shaped covering

237.

In the case of another illustrative embodiment (not represented in any more detail), in its position pushed into the drawer housing 202, the money drawer 203 can be locked with the drawer housing 202 by means of the locking mechanism 210. The lock bar 212 of the locking mechanism 210 may, for example, engage in a recess (not shown) in the underside of the upper wall of the drawer housing 202.

According to Figs. 3 and 5, the cover 214 has close to its front end 240 a receiving compartment 250 for circuit carriers in card form, in particular cards (not shown in any more detail) with integrated circuits, predominantly in accordance with ISO standard 7816, the receiving compartment 50 [sic] having covering 252 which is pivotably mounted on the upper side 251 of the cover 214 and can be locked with the cover 214 by means of a lock 253 (see Fig. 5). The covering 252 is of an L-shaped design, one leg 254 of this L profile extending in the vertical direction and receiving the lock 253. In the region of the front end 40 [sic] of the cover 214, the side edge 216 is bent off at an angle, downward in Fig. 5, and has an opening 255 for the lock bar (not shown in any more detail) of the lock 253. For holding a card (not shown) in the receiving compartment 250, the covering 252 can be pivoted in the direction of the arrow E about its pivoting spindle 256 and, when the covering 252 is arranged parallel to the upper side 251, can be locked by means of a key 257 and the lock 253.

When the covering 252 is closed, the receiving compartment 250 has at its end 260 close to the front end 240 of the cover 214 a slot (not represented in any more detail), the width of which is less than the thickness of the card arranged in the receiving compartment, but is large enough that contact elements or signal transmitting elements of a plug connector (not shown in any more detail) arranged in the drawer housing 202 can engage through the slot of the receiving compartment 250 into a contact receptacle of the card formed at the front end

of the card. When pushing in the cover 214, guided on the money drawer 203, into the drawer housing 202, the contact elements automatically make contact with the respective contact receptacle of the card. The cards may be designed as so-called memory cards and contain, for example, the data on cashier personnel and the daily takings achieved at the cash register concerned. In addition, the amount of change contained in the money drawer 203 and the working time of the cashier personnel can be stored on the card. The card may, however, also be a simple memory card for storing information. Preferably, however, the card is a chip card (card with integrated circuits), interacting with the controller of the cash register and, for example, switching on the operational functions of the register etc.

The operation of the register drawer for a cash register is described in more detail below.

A circuit carrier in card form (not shown in any more detail), for example a card with integrated circuits, is put into the receiving compartment 250 located on the upper side 251 of the cover 214, in such a way that the contact receptacle of the card points towards the end 260 of the receiving compartment. The covering 252 of the receiving compartment 250 is pivoted in the direction of the arrow E (see Fig. 5) until the lock bar (not shown) of the lock 253 engages in the opening 255 and can be turned with the aid of the key 257 in such a way that the receiving compartment is blocked off and the card located in it is protected against removal.

The cover 214 is then fitted onto the money drawer 203 in such a way that the cover rear edge 241 is located approximately in the area of the dimension 225, that is between the front end of the sliding guide 215 and the front wall 226 of the money drawer 203. In this position, the L-shaped profile 221 does not engage yet around the webs 224 of the sliding guide 215. The rear end 246 of the channel-shaped covering 237 is, however, already located approximately in the region of the

set-off 247 formed in the front wall 226 of the money drawer 203. In this position of the cover 214, the change can also be put into the money drawer. Subsequently, the cover is displaced in the direction of the arrow F (see Fig. 3) until the non-bent-around cover rear edge 241 strikes against the rear wall 207 of the money drawer.

If desired, the lock bar 212 can be pivoted out of its position shown in Fig. 3 with the aid of the key 213 in the direction of the arrow C until the free end of the lock bar 212 engages behind the cover rear edge, designed as block 230. The lock 211 may be designed in such a way that the key 213 can be withdrawn from the money drawer 203 even in this position preferably not acting on the catch lever 232. In this position, the cover is in its blocking position and is locked with the money drawer 203.

Such a register drawer can be handed to a person of the cashier personnel, who fits it preferably from above onto the holder 204 of a cash register (not shown) in such a way that the holder comes to lie in the recess 206 provided in the bottom wall 205. Then the money drawer 203 is pushed with its cover 214, including the holder 204, into the drawer housing 202 (cf. moving-in direction according to arrow B in Fig. 4) until the catch lever 232 executes a pivoting movement initially in the anticlockwise direction, subsequently in the clockwise direction about its pivoting spindle 231 and engages behind the pin 243 held in the drawer housing 202. According to Fig. 4, in this position the money drawer is completely pushed into the drawer housing 202. It is also possible, however, for the money drawer to be pushed only partly into the drawer housing 202 when the cover 214 is engaged with the latter. Furthermore, it is conceivable to engage the money tray with the money drawer permanently fitted on the cash register instead of with the drawer housing.

By a turning of the key 213 oppositely to the arrow C (see Fig. 3), the lock bar 212 is transferred into its position shown by solid lines in Fig. 3 and the

money drawer 203 is released for a displacing movement in the moving-out and moving-in direction (see arrows A, B in Fig. 4). When engaging the cover with the drawer housing, the contact elements of a plug connector (not shown) also engage in one or more contact receptacles of the card concerned, which correspond to the contact elements, so that the cash register is operational for the person concerned. The cash register is subsequently operated in a conventional way. However, the cover rear edge 241, designed as block 230 and bent around in the direction of the money drawer 230, prevents a complete withdrawal of the money drawer from the drawer housing without the cover 214.

When the personnel concerned have finished operating the cash register, i.e. also when there is a change of cashier, said cashier pushes the money drawer completely into the drawer housing and pivots the lock bar 212 with the aid of the key 213 in the direction of the arrow C until in its position shown by dashed lines in Fig. 3, in which the lock bar acts on the rear end 245 of the catch lever 232 in the direction of the arrow D against the force of the spring 233, so that the catch lever 232 moves in the anticlockwise direction about the pivoting spindle 231 and the catch 242 releases the pin 43. The money drawer 203 can then be withdrawn by means of its cover 214 and the holder 204 from the drawer housing 202 of the cash register. The key 213 is preferably withdrawn beforehand from the rear wall 207 of the money drawer, it being possible that the lock bar can be pivoted by a small amount oppositely to the direction of the arrow C on account of the force of the spring 233 and that the key cannot be withdrawn until in this position of the lock bar 212. It is also possible, however, that the key 213 can be withdrawn in the dashed position of the lock bar 212; in this case, the catch lever 232 can be prestressed against the lock bar.

When the holder 204 is completely withdrawn from the drawer housing 202, the money drawer with its cover in the blocking position is lifted out of the holder 204

and kept in a safe place. At the same time as the money drawer with the associated cover is withdrawn, the contact elements also disengage from the card, so that the cashier concerned automatically logs off from the cash register. A register drawer of such a design is of a simple construction and plays its part in avoiding cashing-up discrepancies.

The register drawer described above can be used particularly advantageously if it is assigned to a particular person of the cashier personnel. Each person of the cashier personnel is then assigned his or her own money drawer, which is used exclusively by this person. If there is a change in cashier personnel, one person removes his or her money drawer from the drawer housing, while the other person inserts his or her own money drawer into the drawer housing. Consequently, errors in the individual money drawers, noted during cashing-up, can be ascribed unproblematically to the person concerned, so that cashing-up discrepancies of the personnel, in particular when more than one person has operated the cash register during a working unit, can occur less readily. Cashing-up errors occurring in the event of frequent changes in cashier personnel, so-called switching, for example when giving out change from the drawer of a cash register, consequently can no longer lead to discrepancies between the individual persons of the cashier personnel.

Patent claims

1. Computer-controllable apparatus, comprising at least one receptacle designed for receiving a chip card (100), with a contact arrangement (110, 114) for connecting a chip card (100) to other components of the apparatus, characterised in that the computer is formed by a chip card (100) containing at least one central processing unit (CPU), a read-only memory (ROM), a main memory (RAM) and an input/output component (I/O component), in that the apparatus has permanently installed power and drive electronics (118) and a permanently installed power supply unit (130) and in that the contact arrangement comprises connecting contacts (110) for connecting the I/O component to the power and drive electronics (118).

2. Apparatus according to Claim 1, characterised in that the apparatus has further receptacles for receiving further chip cards (132, 134, 138) interacting with the computer chip card (100), and in that these further receptacle [sic] are provided with contact arrangements (117, 119; 121, 123) which are connected to the receptacle of the computer chip card (100).

3. Apparatus according to Claim 1 or 2, characterised in that peripheral devices (120, 122, 124) interacting with the apparatus can be connected to said apparatus and in that at least individual receptacles have for in each case one (138) of the further chip cards a contact arrangement (125, 127) which is connected directly to a peripheral device (120).

4. Apparatus according to one of Claims 1 to 3, characterised in that the receptacles are assigned means (9, 45, 62) of protecting the respectively inserted chip cards (100, 132, 134, 138) against removal.

5. Apparatus according to Claim 4, characterised in that different receptacles are assigned protective means (9, 45, 62) providing different degrees of protection.

6. Apparatus according to one of Claims 1 to 5, characterised in that it is designed as a cash register and in that one (132) of the further chip cards carries

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data for identifying and logging on a cashier and for switching on the operational function of the cash register (company card).

7. Apparatus according to Claim 6, characterised in that one (134) of the further chip cards carries data for identifying a manager superior to the cashiers and is designed for storing and processing data of relevance to the manager (manager's card).

8. Apparatus according to Claim [sic] 6 and 7, characterised in that one (138) of the further chip cards carries and stores fiscally relevant data (fiscal memory).

9. Apparatus according to one of Claims 6 to 8, characterised in that a card holder (5) is provided with a plurality of receptacles (6, 7, 8), and in that each receiving compartment is assigned a locking mechanism (20, 21, 22) for holding an inserted card (2, 3, 4) in its inserted position.

10. Apparatus according to Claim 9, characterised in that a blocking device (44), provided with a locking device (45), is provided for blocking the locking mechanisms (20, 21, 22) in their locking position.

11. Apparatus according to Claim 10, characterised in that the blocking device for blocking particular locking mechanisms (22, 55) comprises a plurality of independent individual blocks (44, 61).

12. Apparatus according to one of Claims 6 to 11, with a register drawer, characterised in that a receptacle (250) is formed on the register drawer (201).

13. Apparatus according to Claim 12, characterised in that the register drawer (201) is provided with a cover (214) remaining in the register housing when the register drawer is moved out, the receiving compartment (250) being formed on the cover.

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