

Design of Accounting Equipment based on Integration

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Abstract

The traditional accounting equipment is upgraded and optimized. Based on the traditional accounting equipment, the design is equipped with flexible storage space such as storage box and cinnabar box, and a portable and storable accounting equipment is developed. The equipment has the characteristics of low cost, portability, high safety and wide market prospect.

Keywords

Accounting; Electronic Calculator; Storage.

1. Introduction

With the rapid development of society, science and technology, accountants and cashiers use electronic calculators, intelligent software and other accounting equipment instead of the original manual abacus in their daily work to carry out a series of activities such as accounting measurement and accounting. At present, calculators are still widely used in accounting. Therefore, a suitable electronic calculator can greatly improve the efficiency and speed of accounting and financial work. However, the computers in the current market generally only have operation function, but have a single function, and usually do not have storage function. When accountants go out to work, they often carry tools such as seals and marking pens, which makes it very inconvenient for accountants to travel, and sometimes even items are lost. On the basis that the accounting equipment sold in the market does not have this condition, a portable integrated accounting equipment is proposed. On the basis of the original, the equipment is designed to open a placing groove at the bottom of the machine shell, in which a storage box is installed, and the top of the storage box is provided with a cinnabar groove and a storage groove. The equipment has the characteristics of low cost, portability, high safety and wide market prospect.

2. Equipment Scheme Design

The design goal is to independently design and provide an integrated accounting equipment. The equipment mainly adopts a machine shell with a solar panel at one end of the top surface, and a button at the other end of the machine shell to provide basic accounting operations, with a display screen in the middle. The outer end of the machine shell is provided with a protective cover to connect the top and bottom storage slots and placement slots, and is equipped with a limiting chute, a communicating chute, a telescopic chute, a flush slot and a cinnabar slot to ensure the normal operation of the integrated accounting equipment. The storage tank and placement tank of the equipment make up for the problem of single operation of general accounting equipment, provide users with reasonable use space and ensure the integrity of accounting. The designed equipment can be composed of bottom hardware, solar panel and storage box (cinnabar tank). The overall architecture design of the equipment is shown in Figure 1. The underlying hardware includes protective cover, storage slot, storage slot and spring. The solar panel mainly relies on solar natural resources, and the storage box is used to store objects (the cinnabar slot can be used to store the seals commonly used by accountants)

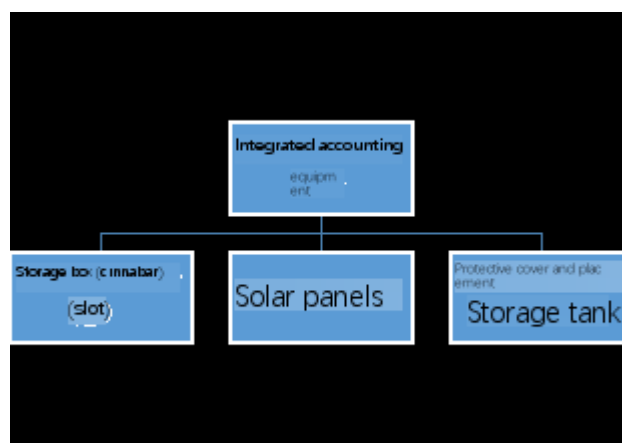


Figure 1. General structure of equipment

3. Hardware Design

3.1. Structural Design and Technical Scheme

An integrated accounting equipment comprises a machine shell, wherein one end of the top surface of the machine shell is provided with a solar panel, the other end of the top surface of the machine shell is provided with a key, a display screen is installed between the key and the solar panel, a protective cover is arranged outside the top of the machine shell, both ends of the protective cover extend to the left and right end edges of the top surface of the machine shell, A limiting chute is arranged at the clamping connection between the top surface edge of the machine shell and the limiting convex strip, a placing groove is arranged at the bottom of the machine shell, a storage box is installed inside the placing groove, a flush groove is arranged at the edge of one side surface of the machine shell opposite to the opening of one side of the placing groove, a communication chute is arranged in the middle of the bottom surface of the flush groove, a telescopic groove is arranged at the inner opening of the machine shell opposite to the communication chute, One end of the clamping block extends vertically downward into the placing groove, the other end of the clamping block is attached to one side surface of the storage box, the other end of the clamping block extends horizontally and vertically into the telescopic groove, and a spring is connected between the other end of the clamping block and the telescopic groove.

The bottom of the placing groove is communicated with the outside, one end of the placing groove penetrates through one end of the machine shell, and the lower ends of the two side surfaces of the placing groove are provided with horizontally raised extension edges which are consistent with the frame size of the storage box.

The shape of the limiting convex strip is a columnar structure with a T-shaped cross section, and the size of the limiting convex strip is consistent with that of the limiting chute.

One end of the clamping block extending into the telescopic groove is provided with a limiting slider, and the shape of the top-down section of the limiting slider is consistent with that of the telescopic groove. There is a gap of 1mm between the limiting slider and the surface of the telescopic groove, and the thickness of the limiting slider is one fourth of the height of the telescopic groove.

A sponge pad is arranged in the cinnabar tank, and cinnabar pigment is adsorbed on the sponge pad.

3.2. Main Machine Shell

The main body of the integrated accounting equipment is made of plastic material, which is roughly equivalent to the common calculator material in the market. There are several screw posts inside, which is simple in structure, convenient for assembly during manufacturing and reduces cost. Electronic cutting is adopted for various grooves on the machine shell, which are related to each other. The bottom of the machine shell is provided with a placing groove. A flush groove is arranged at the edge of one side surface of the machine shell opposite to the opening of one side of the placing groove. A communicating chute is arranged in the middle of the bottom surface of the flush groove. A telescopic groove is arranged inside the machine shell opposite to the opening of the communicating chute, and sufficient space is reserved according to the actual application situation without weakening its portability, so as to try to find a balance point.

3.3. Storage Function Design

There is a safe storage box on the casing, where some seals that may be used in accounting work can be placed. There is also a specially designed cinnabar slot in the storage box, and a sponge pad is arranged in the cinnabar slot, on which cinnabar pigment is adsorbed, so that it is convenient to stamp frequently after accounting, and it is more convenient to carry and occupies less space.

3.4. Design of Computing Function

The calculator is embedded and placed on the casing. It is made of rubber and designed according to the functions frequently used by accountants, trying to make users feel relaxed and convenient. The display system of calculator generally adopts liquid crystal display screen, which has clear numbers, large numbers and wide range.

3.5. Protection Function Design

The equipment is designed with rounded corners, and a protective cover is installed at the same time, so as to prevent the machine from being damaged and adversely affected by accidental falling during use and prolong the service life of the equipment. Foot pads are installed at the bottom of the machine to prevent sudden sliding, and buffer foam is installed inside the casing to reduce the damage to the internal hardware of the machine during impact.

4. Advantages and Characteristics

4.1. Solar Panels

Because calculators consume too little power, and almost all calculators have no backlight, they must be used under illumination. With illumination, solar panels are enough to support calculators. Due to the limited thickness of calculators, most calculators in the market use button cell to generate electricity. At this time, the usage habits of different users will lead to great differences in battery life. The equipment only uses the button cell as a backup. If there is no light, the button cell will work. Compared with ordinary calculators with replaceable batteries, solar calculators only need one investment, which is also a design advantage for users. Therefore, adding a small solar panel with low cost to the calculator is cheaper, more convenient and more environmentally friendly than using ordinary batteries. To sum up, because the power consumption of the calculator is extremely low, only uA level, and the current that the solar panel can just provide is also tens of uA. Although the self-discharge of the button cell is relatively small, the power will eventually run out, so it is unnecessary to change the calculator with batteries frequently, which is of course more in line with the needs of consumers.

4.2. Storage Box

The designed calculator is equipped with a storage slot, in which a storage box is clamped and fixed. Some seals frequently used by accountants can be placed in the storage slot at the top of the storage box. In addition, a cinnabar slot filled with cinnabar is added at one end of the storage box, which is convenient for stamping after accounting. The storage box can also contain several small pens or refills of different colors, paper clips and other small objects that may be used in accounting. There is a storage box to store them together, which is convenient to take out when necessary, convenient to carry and takes up less space. This is also the main characteristic function of calculator.

5. Conclusion

Design accounting equipment based on integration, with storage and portability as the main design core. The equipment can solve the problems that accountants are inconvenient to carry and lose articles when they go out. Through the design of the storage box, office supplies such as seals and marking pens can be safely stored, so that extra space is not used temporarily, and the loss of articles is avoided to ensure safety. At the same time, the accounting equipment is simple in design, reasonable in structure, low in cost, easy to carry and high in safety, and has certain application and popularization value.

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