



## **Research on the Design of Folding Quick Packing Case**

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**Abstract:** In the process of product delivery, packing cases are usually used to package the products to better protect and decorate the products. With the development of economy and the efficiency of logistics, the packaging should be convenient and firm. Existing packing cases are usually packed in cartons and planks. The packing strength of carton boxes is low, and the packing needs to be packaged with tape. Therefore, the packaging efficiency is low. Although the packing case of planks is high in strength, it needs to be stitched or tightened with steel bars. Moreover, it is easy to be loose and deformed in the process of transportation. This scheme designed a packing case to solve the above problems.

**Keywords:** Products; Design; Box Body; Research.

### **1. Ideas For Design**

A Folding fast packing box includes a box and end plate. The box body includes the first side plate, the press plate, the floor board, the second side plate, the insertion rod and the socket. The connecting ear comprises the first connecting ear, the second connecting ear, the third connecting ear and the fourth connecting ear. The other side of the base plate is connected by the second connecting ear to the second plate. A gap and mounting hole are arranged on the side of the roof. The connecting ear arrangement is arranged with a plug and a socket. The first connecting rod and the second connecting rod are installed at the end of the rectangular plate and near the top corner respectively. The second connecting rod is installed in the third connecting ear. The roof is provided with a gap end in the third connecting ear. The invention has the advantages of simple structure and convenient use, and can quickly pack the product. Moreover, the new design has the advantage of high strength. The packing case can be used many times, reducing the use of packaging materials and realizing energy-saving and environmental protection.

## 2. Detail Analysis

The features of the Case and end plate are as follows: The box body includes the first side plate, the press plate, the floor board, the second side plate, the insertion rod and the socket. The connecting ear comprises the first connecting ear, the second connecting ear, the third connecting ear and the fourth connecting ear. The side of the bottom plate is connected by the first connecting ear to the first plate, and the other side of the base plate is connected by the second connecting ear to the second side plate. The pressure plate is connected to the first side by the third connecting ear. The roof is connected to the second panel through the fourth connecting ear. A gap and mounting hole are arranged on the side of the roof. The arrangement of the inner ear is arranged with a plug and a socket, and the plunger and the socket are set to each other. The box also includes the first connection end and the second connection end. The first and second connections are respectively installed with the endplate. The end plate includes the first connecting rod, the second connecting rod and the rectangular plate. The first connecting rod and the second connecting rod are respectively installed at the end of the rectangular plate and near the top corner. The first connecting rod is set at the end of the rectangular plate and near the three top corners. The second connecting rod is set at the end of the rectangular plate and close to one of the top corners. The first connecting rod is installed in the first connecting ear, the second connecting ear and the fourth connecting ear. The second connecting rod is installed in the third connecting ear. The roof is provided with a gap end installed in the third connecting ear, as shown in figure 1.

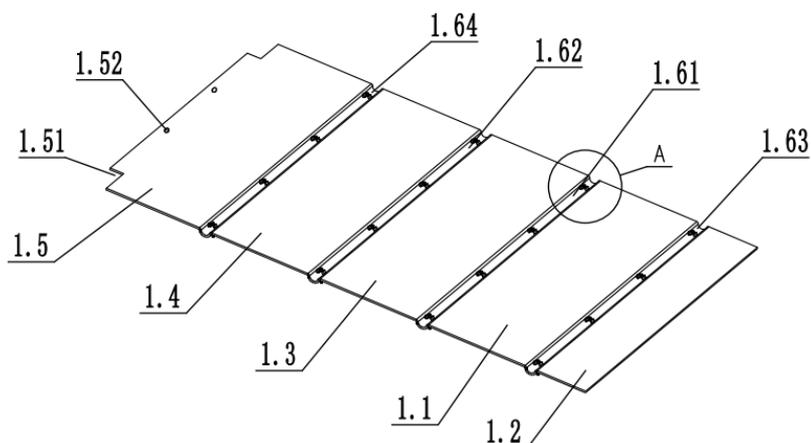


Figure 1 Structural Representation

The connecting ear extends from the first connection to the second connection, connecting the grooved structure of the ear. Both the plunger and the socket are mounted on the inner wall of the grooved structure. The inner wall of the plunger and



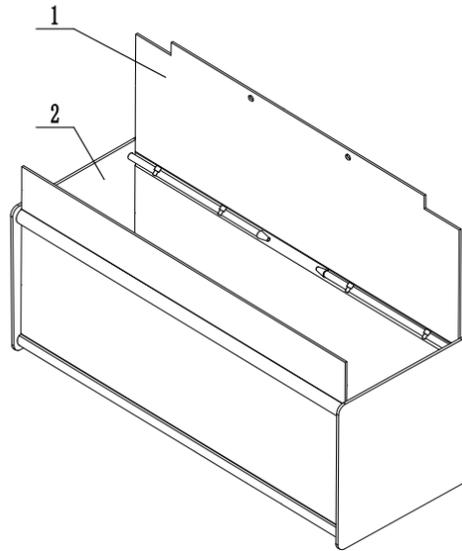


FIG. 3 Schematic Diagram of Overall Composite Structure

The first connecting rod and the second connecting rod end are respectively installed with the cone structure, and the large diameter of the cone is larger than the size of the fitting. The diagram of the decomposition structure is shown in figure 4.

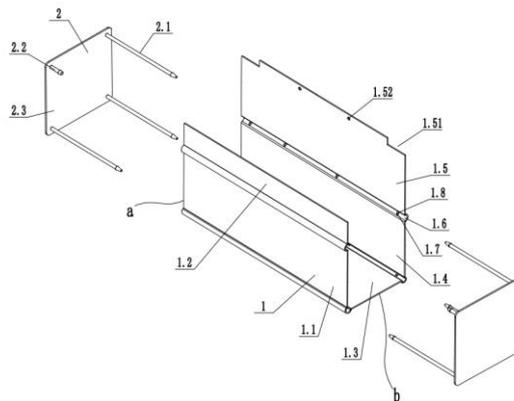


FIG. 4 Schematic Diagram of Decomposition Structure

After the opening of the box, the first side board, the press board, the floor board, the second side board and the roof are in the same plane. The plunger is separated from the plug. The Angle between the spindle axis and the axis of the plug is  $90^\circ$ ; When the box is shaped and folded, the first side of the plate is folded along the first connecting ear, and the second side of the plate is folded along the second connecting ear, and the pressure plate is folded along the third connecting ear, and the roof is folded along the fourth connection. The stick is inserted into the socket. And the third connecting rod is inserted into the mounting hole.

The length of the first connecting rod is less than the length of the second connecting rod, and the gap width is greater than the length of the second link. There is a tapered

structure with a taper structure, and the structure diagram is shown in FIG. 5.

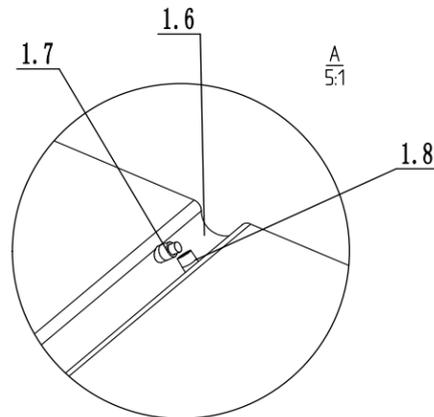


FIG. 5 Schematic Diagram Of Enlarged Structure

The beneficial effect of the present invention is as follows: The invention has the advantages of simple structure and convenient use, and can quickly pack the product. Moreover, the new design has the advantage of high strength. The packing case can be used many times, reducing the use of packaging materials and realizing energy-saving and environmental protection.

#### 4. Conclusion

The technical problem solved by this design solution is to improve packaging efficiency and packaging strength for easy installation and disassembly. At the same time, the new packaging can be used for many times. Therefore, it can achieve energy conservation and environmental protection.

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