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(54) **DOUBLE BUTTON SAFETY MATCH BOX**

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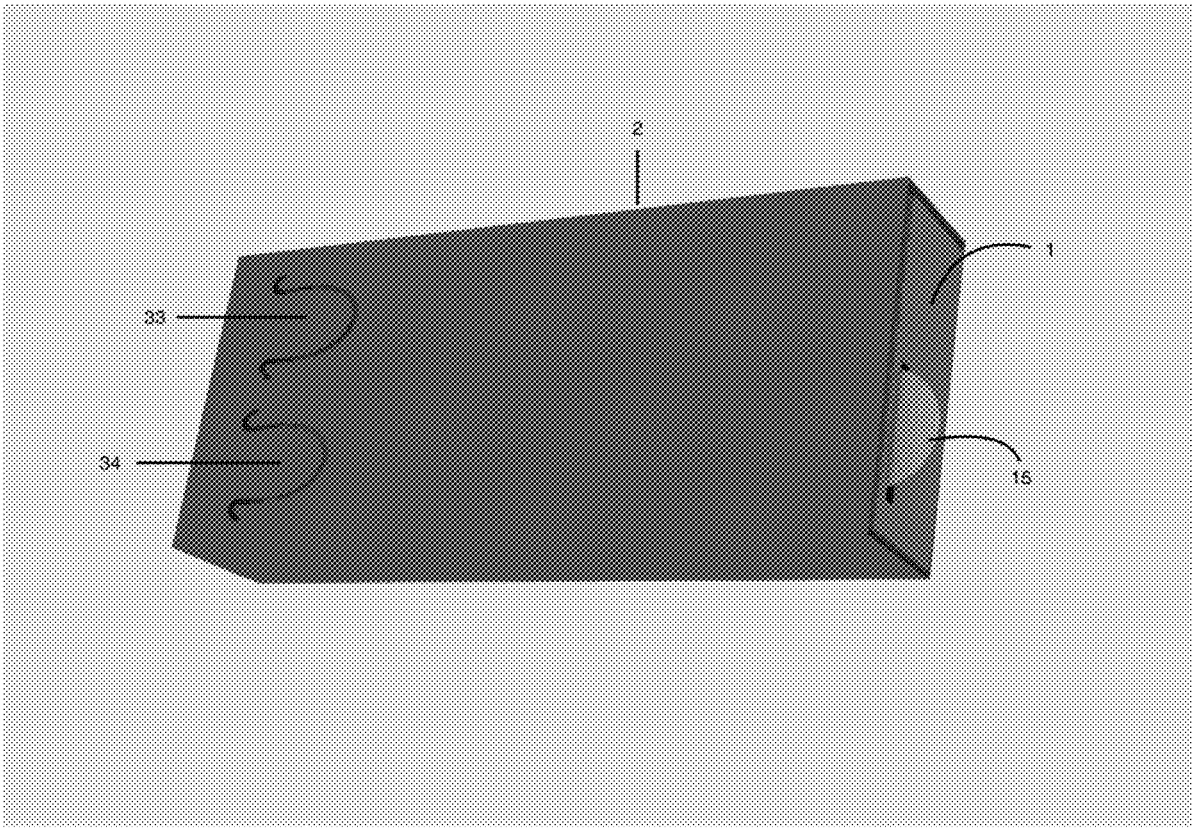
(57) **ABSTRACT**

This disclosure relates generally to a safety match box and comprises a cover member of a generally box-like configuration which has a slidable tray having a pack of matches fastened thereto which fits within the cover member. The general object of this invention is the provision of a very simple device which is adapted to hold a box of matches, a shelf, and lock the box thereto permitting the box to be opened and the matches removed whenever desired. This invention is to provide a child-proof safety match box wherein the tray cannot be completely withdrawn from the cover and particular manipulative steps must be taken in order to open the container.



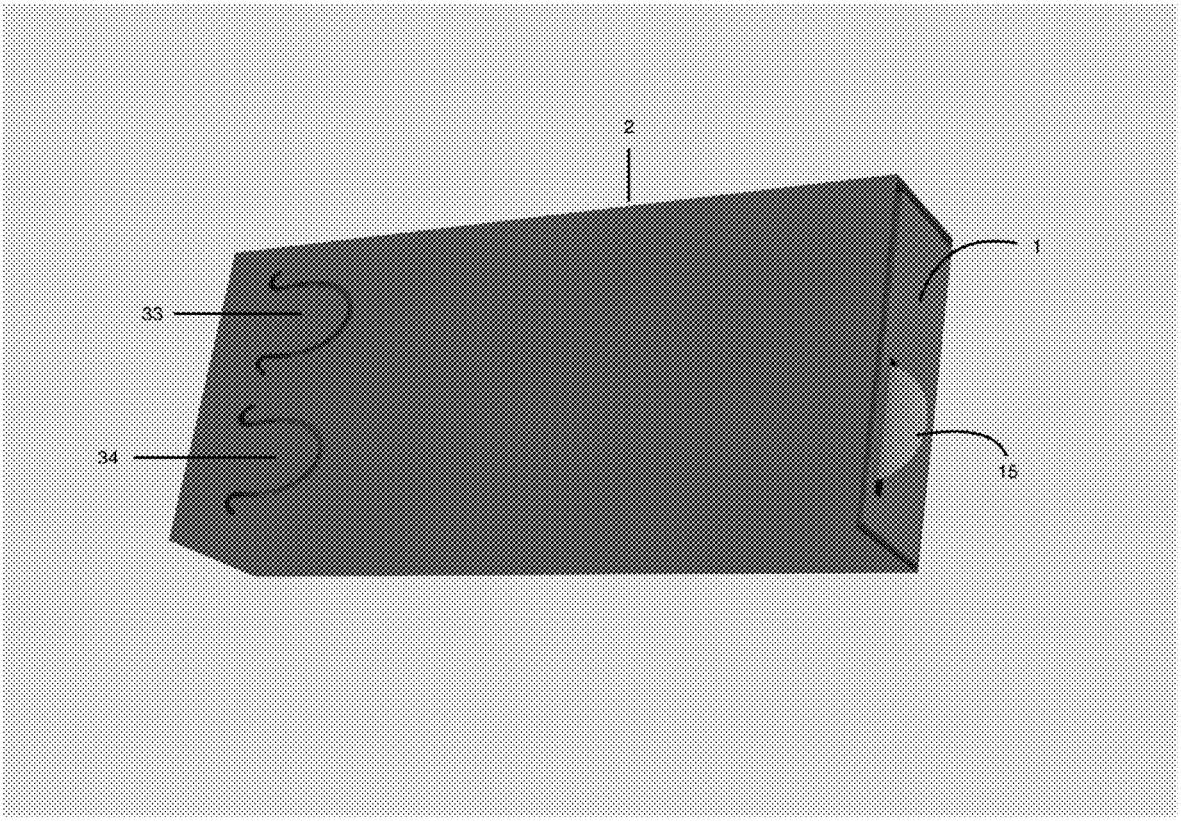


Fig: 1

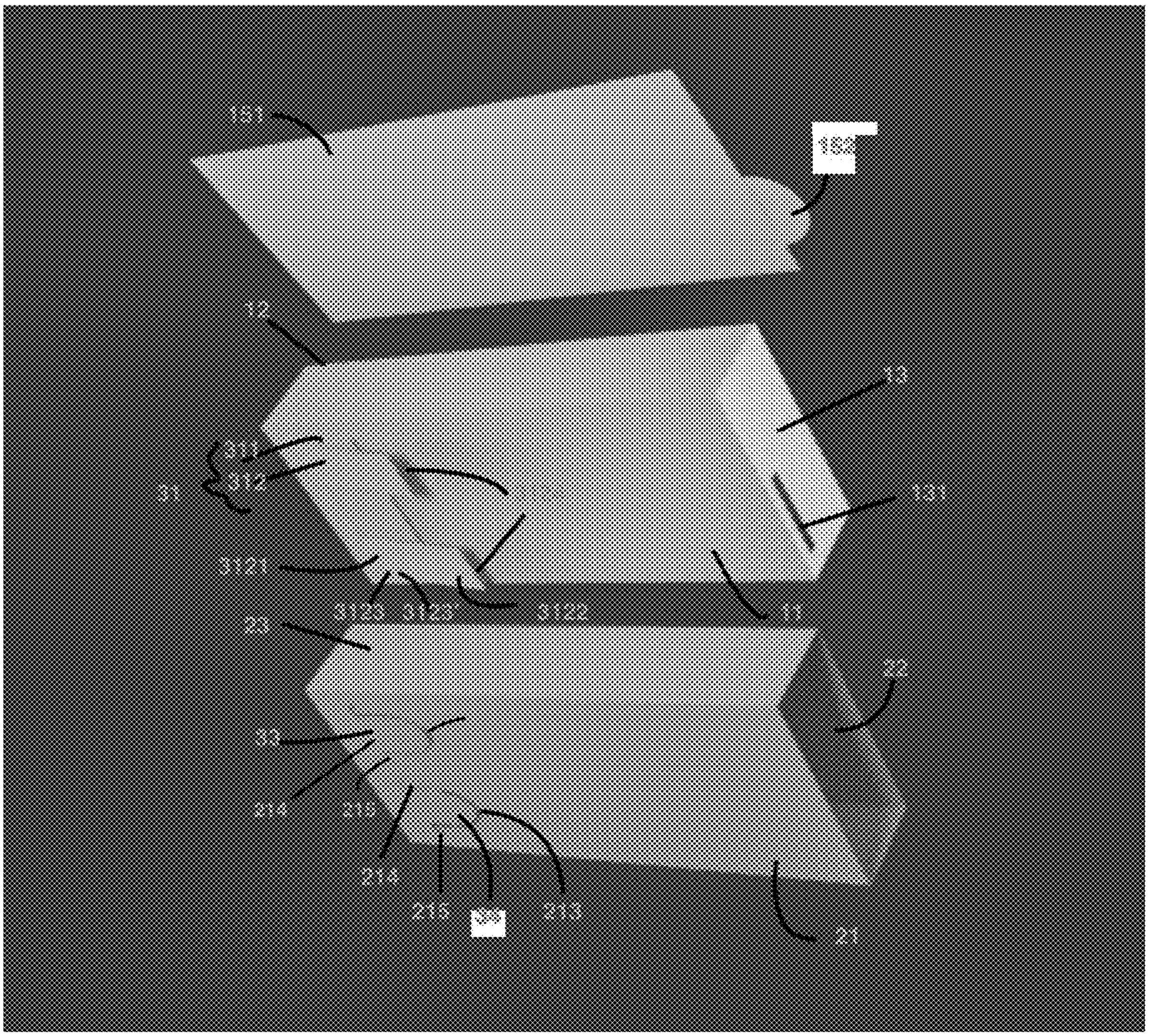


Fig: 2

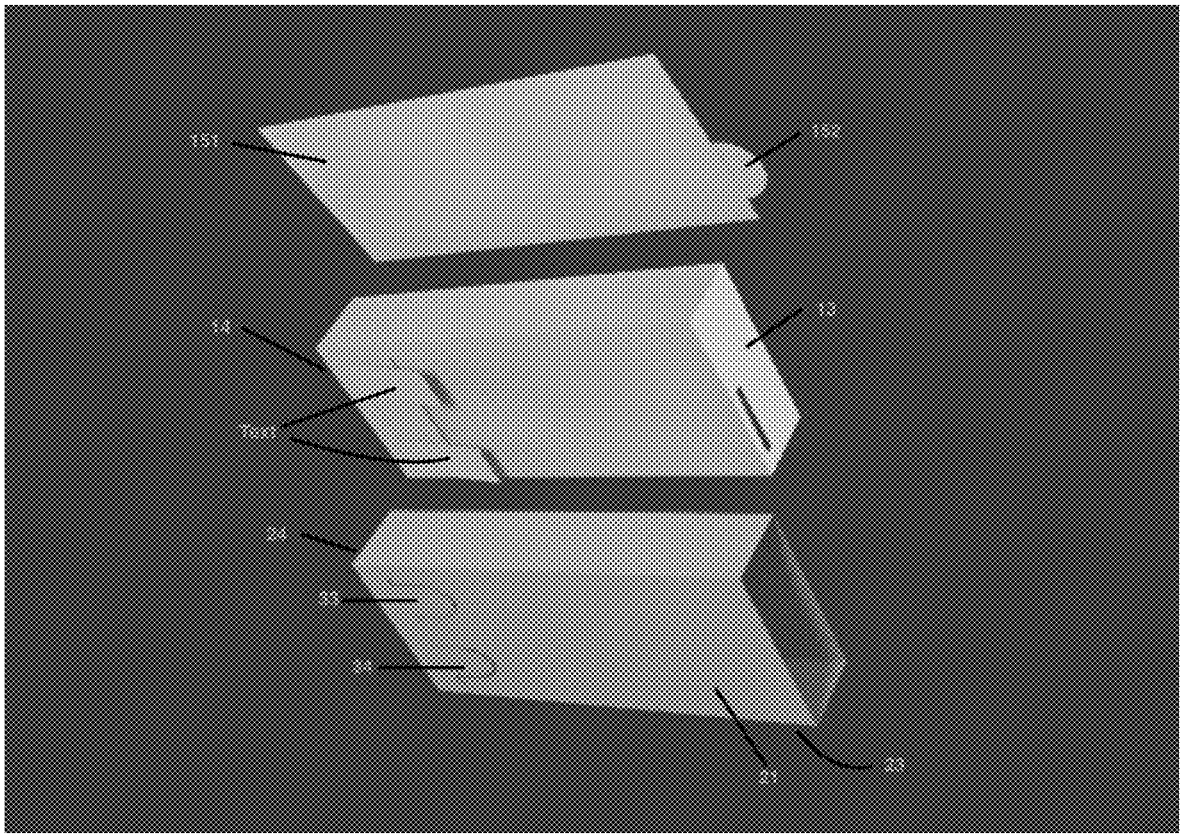


Fig: 3

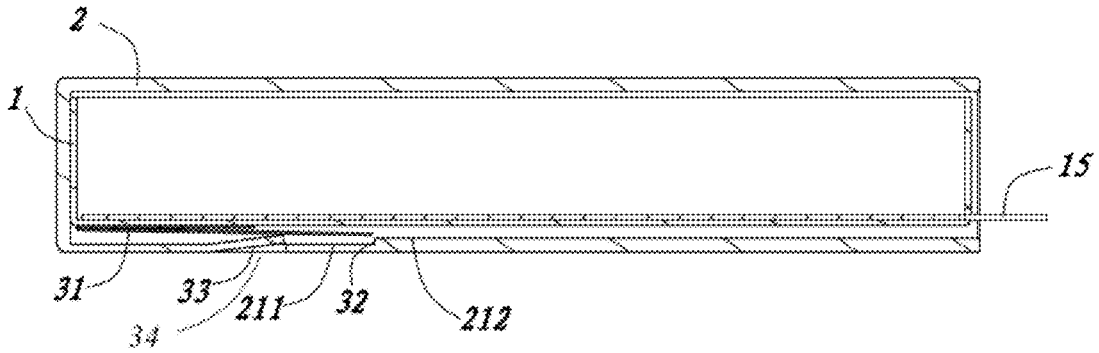


Fig: 4

DOUBLE BUTTON SAFETY MATCH BOX

BACKGROUND

Field of the Invention

[0001] The utility model relates to the technical field of product packaging boxes, in particular to a packaging box with a locking mechanism.

Description of the Related Art

[0002] Cardboard packaging plays an extremely important role in the modern product packaging industry. According to different items of packaging and storage needs, there are different configurations and functions of the product from cardboard cutting, rotating and folding. The pull-type packaging box comprises an outer box and an inner box for placing objects. The inner box can be inwardly received in the outer box and can be drawn out from the opening section of the outer box. In the existing pull-type packaging box, cartons are extended in the opening section of the outer box. Out-extended cardboard is inwardly snapped in to prevent the inner box from slipping out accidentally and outwardly, and it can be folded when the inner box needs to be taken out. The industry also discloses a locking mechanism between the outer box and the inner box, but there are still problems of complex structure, lack of tolerance, short service life and other issues. The prior art discloses various match box arrangements with safety features, but in general, the match boxes of the prior art fail to meet the safety requirements. One of the main requirements is to design a child-proof match box arrangement since the prior art is noticeably deficient in this respect.

[0003] Typical examples of prior art arrangements include U.S. Pat. No. 2,758,708 which discloses a match box with stick type matches having a latch to prevent the same from being opened unless the latch is operated properly. When the latch is moved so that the box can be opened, the striking surfaces are not reachable so that the box has to be closed and the latch locked before a match may be struck against the abrasive striking surface.

[0004] U.S. Pat. Nos. 1,236,758 and 2,604,980 discloses match boxes having a safety striking surface which is only usable when the container is closed. These latter patents have serious design drawbacks since, for example, the tray can be removed leaving the striking surface exposed at all times. While U.S. Pat. No. 2,604,980 to Reed does not have child-proof locking means and merely provides a minimum of safety precautions. Further, U.S. Pat. No. 3,942,630 to Phillips discloses a sliding container package having locking lugs which are locked when the cover is closed and prevents the same from being opened until axial movement of the cover occurs with respect to the container against the biasing member.

[0005] However, to Applicant's knowledge, none of these prior art methods have been found to be completely suitable and are cumbersome and non-durable. Hence, the inventor of the present invention proposes to resolve and surmount existent technical difficulties related to lock/unlock features and to eliminate the aforementioned shortcomings of prior art. The present invention is a child-proof safety match box arrangement and incorporates features never utilized in the match box art. The match box of the present invention requires particular manipulation before the container can be opened and means by which to retain the tray within the container so that it cannot be removed. The overall combination of these features is nowhere disclosed in the prior art cited above which appears to be representative of the general art in this area although it is not intended to be an all-inclusive listing of pertinent prior art patents.

SUMMARY

[0006] In light of the disadvantages of the prior art, the following summary is provided to facilitate an understanding of some of the innovative features unique to the present invention and is not intended to be a full description. A full appreciation of the various aspects of the invention can be gained by taking the entire specification, claims, drawings, and abstract as a whole.

[0007] According to a first embodiment the invention is a packaging box with a locking mechanism, including one inner box and one outer box. The outer box is provided with an opening at a front end as shown in the Image **1** position so that the inner box can be pulled out of the outer box. The outer box comes with a bottom wall, a top wall and a side wall connecting the top wall and the bottom wall. The inner box comes with a bottom wall as well. The locking mechanism comprises a resisting plate fixed to the bottom wall to form a stop surface and a control component on the bottom wall. The resisting plate includes a fixing component attached to the bottom surface of the bottom wall and a resisting component bent downwards from the rear edge of the fixing component and extending obliquely forward.

[0008] By adopting the packaging box of this utility model, the resisting plate is placed to prevent the inner box from sliding outwards from the outer box. And by pressing the control component up against the resisting plate, the resisting plate is placed upward beyond the stop surface, making the inner box easy to be drawn out from the outer box. The structure is simple and durable and easy to use.

[0009] Accordingly, an object of this invention is to provide a new and improved safety match box arrangement.

[0010] Another object of this invention is to provide a child-proof safety match box wherein the tray cannot be completely withdrawn from the cover and particular manipulative steps must be taken in order to open the container.

[0011] Accordingly, it is a principal object of the invention to provide new and improved childproof container closure means. It is yet another object of the present invention to provide a child-resistant cap assembly that is inexpensive to manufacture and easy to use.

[0012] This Summary is provided merely for purposes of summarizing some example embodiments, so as to provide a basic understanding of some aspects of the subject matter described herein. Accordingly, it will be appreciated that the above-described features are merely examples and should not be construed to narrow the scope or spirit of the subject matter described herein in any way. Other features, aspects, and advantages of the subject matter described herein will become apparent from the following Detailed Description, Figures, and Claims.

Utility Model Content

[0013] The purpose of the utility model is to provide a packaging box with a locking mechanism, which can pre-

vent the inner box from slipping out from the outer box and even falling. The structure is simple and durable, and it is convenient to use.

[0014] To achieve the above purpose of the utility model, this packaging box comes with a locking mechanism, including one inner box and one outer box. The outer box is provided with an opening at a front end as shown in the image **1** position so that the inner box can be pulled out of the outer box. The outer box comes with a bottom wall, a top wall and a side wall connecting the top wall and the bottom wall. The inner box comes with a bottom wall as well. The locking mechanism comprises a resisting plate fixed to the bottom wall to form a stop surface and a control component on the bottom wall. The resisting plate includes a fixing component attached to the bottom surface of the bottom wall and a resisting component bent downwards from the rear edge of the fixing component and extending obliquely forward. By adopting the packaging box of this utility model, the resisting plate is placed to prevent the inner box from sliding outwards from the outer box. And by pressing the control component up against the resisting plate, the resisting plate is placed upward beyond the stop surface, making the inner box easy to be drawn out from the outer box.

[0015] As a further improvement of the utility model, the resisting plate extends forward beyond the fixing component and it has the first elastic component between the fixing component and the bottom wall.

[0016] As a further improvement of the utility model, the second elastic component does not extend beyond the first elastic component and the fixing component in the transverse direction.

[0017] As a further improvement of the utility model, the control component extends rearwardly from below the second elastic component to the first elastic component.

[0018] As a further improvement of the utility model, the resisting component has two sides extending in the front-rear direction and a transverse side extending resisting side, and the connecting component between the side and the resisting side is formed with an arc-shaped down angle.

[0019] As a further improvement of the utility model, the bottom wall comprises a base and a thickened layer overlying an upper surface of the base portion. The trailing edge of the thickened layer forms the stop surface.

[0020] As a further improvement of the utility model, the control component is integrated with the bottom wall. A first opening section is formed between the control component and the bottom wall. The width of the control component along the transverse direction gradually increases from front to back.

[0021] As a further improvement of the utility model, the bottom wall is further provided with a second opening section extending laterally outwardly from the rear end of the first tier. And a third opening section extends forwardly and outwardly from the end of the second tier.

[0022] As a further improvement of the utility model, the inner box has two opposite side plates which are arranged oppositely to connect the front plate and the back plate of the two side plates. The bottom plate, the side plate, the front plate and the back plate together form a containing space above the opening section. The inner box further includes a drawer plate disposed proximate to the upper surface of the base plate and extending forwardly beyond the front plate.

[0023] As a further improvement of the utility model, the front plate near the bottom plate is provided with a strip-shaped pullout opening laterally. The drawing plate has a main body component located in the opening section and a drawing plate extending forwardly from the main body through the drawing opening section. The front and rear edges of the main body respectively abut on the front plate and the rear plate.

[0024] The utility model has the following beneficial effects. By adopting the packaging box of the utility model, the inner box is prevented from sliding out of the outer box through the resisting plate fixed on the bottom box of the inner box. And by pressing the control component up against the resisting plate, the resisting plate is placed upward beyond the stop surface, making the inner box easy to be drawn out from the outer box. The structure of the packaging box is more concise and durable, and easy to operate.

BRIEF DESCRIPTION OF THE DRAWINGS

[0025] The accompanying figures, where like reference numerals refer to identical or functionally similar elements throughout the separate views, together with the detailed description below, are incorporated in and form part of the specification, and serve to further illustrate embodiments of concepts that include the claimed invention, and explain various principles and advantages of those embodiments.

[0026] FIG. **1** is a schematic view of the overall structure of the utility model packaging box.

[0027] FIG. **2** is an exploded schematic view of the packaging box of FIG. **1**.

[0028] FIG. **3** is an exploded schematic view of the packaging box of FIG. **1** with differing definition points.

[0029] FIG. **4** is a cross-sectional view of the packaging box in the front-back direction of the present invention.

[0030] Skilled artisans will appreciate that elements in the figures are illustrated for simplicity and clarity and have not necessarily been drawn to scale. For example, the dimensions of some of the elements in the figures may be exaggerated relative to other elements to help to improve understanding of embodiments of the present invention.

[0031] The apparatus and method components have been represented where appropriate by conventional symbols in the drawings, showing only those specific details that are pertinent to understanding the embodiments of the present invention so as not to obscure the disclosure with details that will be readily apparent to those of ordinary skill in the art having the benefit of the description herein.

DETAILED DESCRIPTION

[0032] Before explaining the invention in detail, it is to be understood that the invention is not limited in its application to the detail of construction and arrangement of parts illustrated in the drawings since the invention is capable of other embodiments and of being practiced or carried out in various ways. It is also to be understood that the phraseology or terminology employed is for the purpose of description only and not of limitation.

[0033] The following is a detailed description combining pictures on the implementation of the packaging box. However, this implementation does not limit the present invention. The structures, methods, or functional changes made by

those ordinary skilled in the art according to the implementation are all included in the protection scope of the present invention.

[0034] Please refer to FIG. **1**, which is a structural diagram of a packaging box provided by the utility model. The packaging box includes an inner box (**1**), an outer box (**2**), and a locking mechanisms disposed between the inner box (**1**) and the outer box (**2**). The front end of the outer box (**2**) in the first direction is open, so that the inner box (**1**) can be pulled out of the outer box (**2**) in the first direction or rearwardly received in the outer box (**2**). The outer box (**2**) is provided with an opening at a front end so that the inner box (**1**) can be pulled out of the outer box (**2**) or rearwardly received in the outer box (**2**).

[0035] As shown in FIG. **2** to FIG. **4**, there is a bottom wall (**11**), two side walls opposite to each other (**12**), a front wall (**13**), and a rear wall (**14**) connecting the two side walls (**12**). The bottom wall (**11**), the side wall (**12**), the front wall (**13**), and the rear wall (**14**) together form a containment space above the opening section. The outer box (**2**) has a bottom wall (**21**), a top wall (**22**), a side wall (**23**) connecting the top wall (**22**) and the bottom wall (**21**), and a rear wall (**24**). The locking mechanism includes a resisting plate (**31**) fixed to the bottom wall (**11**), a stop surface (**32**) formed on the bottom wall (**21**), and a control component (**33**) on the bottom wall (**21**). When the inner box (**1**) is fully received in the outer box (**2**), the resisting plate (**31**) is located on the rear side of the stopping surface (**32**) and abuts against the front and back sides of the stopping surface (**32**) to prevent the inner box (**1**) from being drawn outwardly from the outer box (**2**).

[0036] The resisting plate (**31**) includes a fixing component (**311**) attached to the lower surface of the bottom wall (**1**). And the rear portion of the fixing component (**311**) is bent downwards and extends obliquely forward toward the resisting plate (**312**). The resisting plate (**312**) extends forward beyond the fixing component (**311**) and has a first elastic portion (**3121**) located between the fixing component (**311**) and the bottom wall (**21**) and the second elastic portion (**3122**) extends forward from the first elastic portion (**3121**) beyond the fixing component (**311**). The second elastic portion (**3122**) does not extend beyond the first elastic portion (**3121**) and the fixing component (**311**) in the lateral direction.

[0037] In general, the control components (**33**) and (**34**) are at an intermediate positions of the bottom wall (**21**). The width of the resisting plate (**312**) extending in the transverse direction exceeds the width of the control member (**33**) in the transverse direction. The resisting plate (**312**) has further two sides (**3123**) extending forward and backward and a transversely extending resisting side (**3124**). When the control components (**33**) and (**34**) are pressed upward, the middle portions of the resisting plates (**312**) is directly stressed such that the height of the portion of the resisting edge (**3124**) adjacent to the side edge (**3123**) is slightly lower than the height of the middle portion of the resisting edge (**3124**). Therefore, an arc-shaped chamber (**3125**) is provided at the connection between the resisting edge (**3124**) and the side edge (**3123**) to prevent the resisting edge (**3124**) and the side edge (**3123**) from being connected with the stop surface (**32**) being pressed and deformed. Thereby affecting the normal drawing of the inner box (**1**). Preferably, the width of the second elastic portion (**3122**) in the transverse direction is less than the width of the first elastic portion (**3121**). The side edge (**3123**), which has at least one side of the resisting portion (**312**), has a transition section (**3123**) that is retracted in a transverse direction.

[0038] The bottom wall (**21**) includes a base (**211**) and a thickened layer (**212**) covering an upper surface of the base (**211**). The rear edge of the thickened layer (**212**) forms the stop surface (**32**). Preferably, the thickened layer (**212**) is consistent with the width of the base (**211**) and the rear edge of the thickened layer (**212**) extends along a straight line in the transverse direction. The control components (**33**) and (**34**) are integrally installed with the bottom wall (**21**). And the control components (**33**) and (**34**) are located on the base (**211**) on the rear side of the thickened layer (**212**). The control components (**33**) and (**34**) preferably extends rearwardly from below the second elastic portion (**3122**) to below the first elastic portion (**3121**).

[0039] The width of the control components (**33**) and (**34**) in the transverse direction gradually increases from front to rear. The control components (**33**) and (**34**) are designed in two rectangular shape. A first opening section (**213**) is formed between the control components (**33**) and (**34**) and the bottom wall (**21**). The bottom wall (**21**) is further provided with a second opening section (**214**) extending laterally outward from the rear end of the first opening section (**213**). The third opening section (**215**) extends obliquely forward and outward from the end of the second opening section (**214**). The second opening section (**214**) and the third opening section (**215**) can reduce the material fatigue of the bottom wall (**21**) and maintain the resilience. Also, it can help reduce the stress of the edge of the control components (**33**) and (**34**), especially the rear end of the first opening section (**213**) and avoid tearing of the bottom wall (**21**) as well. Thereby effectively prolonging the service life of the packaging box and improving the structural reliability.

[0040] The inner box (**1**) further comprises an upper surface close to the bottom wall (**11**). And it extends forwardly beyond the drawing plate (**15**) of the front wall (**13**). A portion of the front wall (**13**) adjacent to the bottom wall (**11**) is laterally designed with a strip-shaped pullout opening section (**131**). The pull plate (**15**) has a main body (**151**) located in the open section and a drawing plate (**152**) that protrudes forward from the body portion (**151**) through the drawing opening section (**131**). The front and rear edges of the main body (**151**) are adjacent to or abut against the front wall (**13**) and the rear wall (**14**) respectively. This is to prevent the pulling part (**152**) from being pushed into the receiving space accidentally, resulting in inconvenient drawing. Preferably, the size of the main body (**151**) is adapted to the size of the bottom plate (**11**) so as to maintain the flatness of the bottom of the open section.

[0041] To sum up, the packaging box prevents the inner box (**1**) from slipping out of the outer box (**2**) through the resisting plate (**31**) against the stop surface (**32**) and makes the inner box (**1**) able to be drawn outwards easily. The structure of the packaging box is more concise and durable. The resilience performance of the resisting plate (**31**) and the control components (**33**) and (**34**) is good. This can help extend the service life and prevent tearing. The packaging box is easy to use and has a good application prospect.

[0042] It should be understood that although the specification is described according to the implementation, not each implementation includes only one independent technical solution. The description of the instruction is used for giving clarity only. The technicians in this field should see

this instruction as a whole. The technical solutions in the implementation may also be combined to form other implementation that can be understood by technicians in this field.

[0043] The Abstract of the Disclosure is provided to allow the reader to quickly ascertain the nature of the technical disclosure. It is submitted with the understanding that it will not be used to interpret or limit the scope or meaning of the claims. In addition, in the foregoing Detailed Description, it can be seen that various features are grouped together in various embodiments for the purpose of streamlining the disclosure. This method of disclosure is not to be interpreted as reflecting an intention that the claimed embodiments require more features than are expressly recited in each claim. Rather, as the following claims reflect, inventive subject matter lies in less than all features of a single disclosed embodiment. Thus, the following claims are hereby incorporated into the Detailed Description, with each claim standing on its own as a separately claimed subject matter.

The present invention is a safety match box comprising:

1) a packaging box with a locking mechanism, including one inner box and one outer box. The outer box is provided with an opening at a front end as shown in the image **1** position so that the inner box can be pulled out of the outer box. The outer box comes with a bottom wall, a top wall and a side wall connecting the top wall and the bottom wall. The inner box comes with a bottom wall as well. The locking mechanism comprises a resisting plate fixed to the bottom wall to form a stop surface and a control component on the bottom wall. The resisting plate includes a fixing component attached to the bottom surface of the bottom wall and a resisting component bent downwards from the rear edge of the fixing component and extending obliquely forward. By adopting the packaging box of this utility model, the resisting plate is placed to prevent the inner box from sliding outwards from the outer box. And by pressing the control component up against the resisting plate, the resisting plate is placed upward beyond the stop surface, making the inner box easy to be drawn out from the outer box.

2) The packaging box according to claim **1**, the features are: the resisting plate extends forward beyond the fixing component and it has the first elastic component between the fixing component and the bottom wall. The second elastic component extending forward beyond the securing component from the first elastic component.

3) The packaging box according to claim **2**, wherein the second elastic component does not extend beyond the first elastic component and the fixing component in the transverse direction.

4) The packaging box according to claim **2**, wherein the control component extends rearwardly from below the second elastic component to the first elastic component.

5) The packaging box according to claim **1**, wherein the resisting component has two sides extending in the front-rear direction and a transverse side-extending resisting side, and the connecting component between the side and the resisting side is formed with an arc-shaped down angle.

6) The packaging box according to claim **1**, wherein the bottom wall comprises a base and a thickened layer overlying an upper surface of the base portion. The trailing edge of the thickened layer forms the stop surface.

7) The packaging box according to claim **1**, wherein the control component is integrated with the bottom wall. A first opening section is formed between the control component and the bottom wall. The width of the control component along the transverse direction gradually increases from front to back.

8) The packaging box according to claim **7**, wherein the bottom wall is further provided with a second opening section extending laterally outwardly from the rear end of the first tier. And a third opening section extends forwardly and outwardly from the end of the second tier.

9) The packaging box according to claim **1**, wherein the inner box has two opposite side plates which are arranged oppositely to connect the front plate and the back plate of the two side plates. The bottom plate, the side plate, the front plate and the back plate together form a containment space above the opening section. The inner box further includes a drawer plate proximate to the upper surface of the base plate and extending forwardly beyond the front plate.

10) The packaging box according to claim **9**, wherein the front plate near the bottom plate is provided with a strip-shaped pullout opening laterally. The drawing plate has a main body component located in the opening section and a drawing plate extending forwardly from the main body through the drawing opening section. The front and rear edges of the main body respectively abut on the front plate and the rear plate.

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