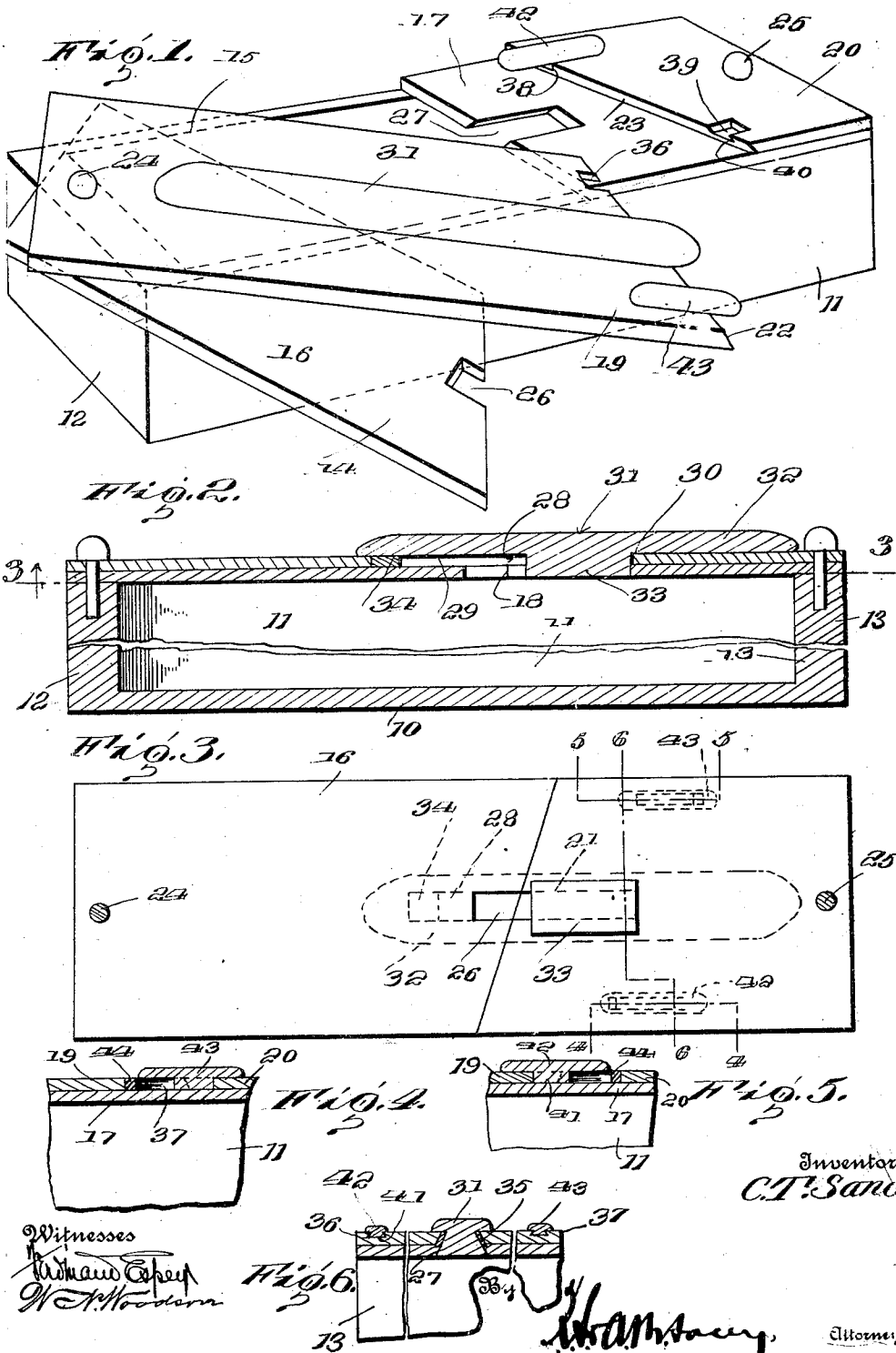


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PUZZLE BOX.
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PUZZLE-BOX.

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To all whom it may concern:

Be it known that I, CHARLES T. SAND, citizen of the United States, residing at Ferndale, in the county of Whatcom and State of Washington, have invented certain new and useful Improvements in Puzzle-Boxes, of which the following is a specification.

My invention relates to new and useful improvements in puzzle boxes, and the object of my invention is to provide a box which can be opened only in a certain particular manner which is not readily apparent upon an inspection of the box when closed.

A further object of my invention is to provide a puzzle box which will be of value because of the amusement which it affords, but which is also useful as a depository of articles of various kinds for safe keeping, being particularly well adapted for use by school children as a pen and pencil box as it will prevent the surreptitious taking of the supplies by other children.

A further object of my invention is to provide a box having an inner and an outer cover, each divided transversely intermediate its length, the superimposed sections of the covers being swingingly mounted upon the ends of the box in each case by a common pivot pin, one of the inner cover sections being secured to the corresponding outer cover section.

A further object of my invention is to provide independent means for locking the outer cover sections together and for locking the inner cover sections together, said latter means being such that when in operative position it also serves as an additional lock for the outer cover section.

A still further object of my invention is to so arrange the locks of both the outer and inner covers that that section of the inner cover which is free from its corresponding outer cover section must be unlocked and swung to open position before the outer cover section may be opened. And a still further object of my invention is to so arrange the lock for the said inner cover section that after said section has been opened its lock must be reversely moved to assist in freeing the outer cover sections.

With these and other objects in view, my invention will be more fully described, illustrated in the accompanying drawing, and then specifically pointed out in the claims

which are attached to and form a part of this application.

In the drawing: Figure 1 is a perspective view of the box partially open; Fig. 2 is a fragmentary longitudinal section of the box in closed position, the lock for securing the inner cover sections in position being shown in inoperative position; Fig. 3 is a section through the line 3—3 of Fig. 2, looking in the direction of the arrows and showing a bottom plan view of the inner cover; Fig. 4 is a section on the line 4—4 of Fig. 3, showing the operation of one of the locks for securing the outer cover members in position; Fig. 5 is a section on the line 5—5 of Fig. 3, showing the other lock of the outer cover sections; Fig. 6 is a transverse section on the line 6—6 of Fig. 3 still further showing the details of lock construction.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawing by the same reference characters.

The preferred embodiment of my invention includes a substantially rectangular shaped box, preferably formed of wood and having a bottom 10, spaced side walls 11, and spaced end walls 12 and 13, an inner cover designated as a whole by the numeral 14 and an outer cover designated as a whole by the numeral 15, these cover members being formed of the same material as the body of the box.

The inner cover 14 consists of two sections 16 and 17 which are preferably formed from a single piece of wood corresponding in shape and outline to the top of the box and divided diagonally, as shown at 18 in Fig. 2 of the drawing. The outer cover member also consists of two sections 19 and 20 which are preferably formed in like manner from a single piece of wood and which are divided diagonally, as shown at 21 in Fig. 3, the division in this latter case being so formed as to provide the co-acting beveled faces 22 and 23.

As best shown in Fig. 1 of the drawing, the inner and outer covers are so divided that the outer cover section 19 is somewhat longer than the inner cover section 16, while the outer cover section 20 is correspondingly shorter than the inner cover section 17. The inner and outer sections 16 and 19 are secured to the end member 12 of the box by a

common pivot pin 24, while the inner and outer cover sections 17 and 20 are secured in like manner to the end member 13 of the box by a common pivot pin 25. The inner and outer cover sections 17 and 20 are also secured to each other in any preferred manner.

From the foregoing description, it will be apparent that the cover sections 17 and 20 may be swung as a whole independently of the cover sections 16 and 19, and that the cover sections 16 and 19 are mounted to swing independently of each other and of the sections 17 and 20.

The present invention consists essentially in the provision of peculiarly arranged locks for securing the various sections of the covers in closed position and particularly in the arrangement of the lock for securing the inner cover sections in closed position. In order to lock the inner cover sections in operative position, I have provided their adjacent ends with aligned slots 26 and 27, the side faces of which diverge downwardly, as best shown in Fig. 6 of the drawing. I have also provided the outer cover section 19 with a centrally formed, longitudinally extending slot 28 which, when all of the cover sections are in closed position, registers with the communicating slots 26 and 27 and the ends of which extend beyond the ends of the slots 26 and 27, as shown at 29 and 30.

Co-acting with and operating in the slots above described, is a locking bolt designated as a whole by the numeral 31 and including a body member 32 movable longitudinally upon the upper faces of the outer cover sections and proportioned to hide all portions of the slots when the covers are in closed position, irrespective of the position of the lock bolt and a downwardly depending integrally formed locking shoulder 33 which engages in the slot 28 of the outer cover section 19 and in the slot 27 of the cover section 17 or both the slots 26 and 27 depending upon whether the bolt is in active or inactive position. As shown, the side faces of this locking shoulder diverge downwardly to fit snugly between the diverging sides of the slots and so hold the bolt against vertical movement.

The slots 26, 27 and 28 are so proportioned with respect to each other that when the covers are all closed and the locking bolt 31 is moved to seat in the slot 26, it will also seat in the outer end of the slot 27 and so lock all of the cover sections against movement. When the locking bolt is moved toward the pivot pin 25 its shoulder seats entirely within the slots 28 and 27, thereby releasing the inner cover section 16 which may be swung outwardly into open position, the bolt in the meantime locking the joined cover sections 17 and 20 to the cover section 19 and preventing access to the box. If

after the inner cover section 16 has been swung to open position, the locking bolt 31 is moved to its full extent toward the pivot pin 24 its shoulder will seat fully in the slot 28, being disengaged from the slot 29 and so releasing the sections 17 and 20 from the section 19 when said sections, together with the section 19, may be swung to open position by oppositely rotating them about their pivot pins.

The inner end of the slot 28 is provided with a block of rubber or other suitable packing material 34 to cushion the bolt 31 and the side faces of the shoulder 33 of the bolt are preferably provided with strips of packing 35 to cause them to bear closely against the sides of the slot 28.

As a means for further locking the outer cover sections 19 and 20 together when in closed position I have provided the cover section 19 with recesses 36 and 37 formed in the end portion of its upper face and alining with corresponding recesses 38 and 39 formed in the inner end portion of the upper face of the cover section 20. The side faces of each of these recesses are cut-away, as shown at 40 to prevent the disengagement of the shoulders 41 of locking bolts 42 and 43, the sides of which diverge downwardly as best shown in Fig. 6 of the drawing. These recesses are so proportioned that when the locking bolt 42 is moved toward the end 13 of the box as far as possible, its shoulder will seat wholly in the recess 38, while when the locking bolt 43 is moved as far as possible toward the end 12 of the box, its shoulder will seat wholly in the recess 37 of the outer cover section 19, thereby releasing the cover section 19 from the cover sections 17 and 20. When, however, the locking bolts 42 and 43 are moved to reversed position, the locking bolt 42 engages partially in the recess 36 and partially in the recess 38, while the locking bolt 43 engages partially in the recess 37 and partially in the recess 39, the bolts thereby locking the cover section 19 to cover the sections 17 and 20. The inner ends of the recesses 37 and 38 are provided with packing blocks 44 corresponding to the packing block 34 of the slot 28.

From the foregoing description, taken in connection with the drawing, the operation of my improved puzzle box will be apparent and but slight description of the same is necessary. Assuming the box to be closed and in fully locked position, the bolts 31 and 42 rest as far as possible toward the end 12 of the box, while the bolt 43 rests as far as possible toward the end 13 of the box.

To unlock the box, the bolt 31 is moved as far as possible toward the end 13 of the box to disengage its shoulder from the slot 26 of the inner cover section 16 which, by pressure exerted against one of its side edges, may be swung outwardly to open po-

sition. In the meantime, the bolt 31 and the bolts 42 and 43 lock the remaining cover sections against movement. The bolt 31 is then moved toward the end 12 of the box to disengage its shoulder from the slot 27 and the bolts 42 and 43 are moved toward the ends 13 and 12, respectively, of the box to disengage their shoulders from the recesses 36 and 39 when all cover sections may be swung to open position. These bolts 42 and 43 may be moved to inoperative position in the first instance and the bolt 31 then moved as above described, if desired, the result being the same in either case.

As will be apparent from the foregoing description, it is absolutely impossible to unlock the box without first moving the bolt 31 toward the end 13 of the box and then moving it toward the end 12 of the box, the inner cover section 16 in the meantime being swung to open position. This opening of the inner cover section 16 first is the step which usually causes the most difficulty in the opening of the box to one not knowing the system. In fact, the bolts 42 and 43 may be omitted, if desired, and the box will be extremely difficult to open in spite of their omission or both of the bolts 42 and 43 may be constructed to move in the same direction during the unlocking of the box.

From the foregoing description, it will be apparent that I have provided a puzzle box which is extremely simple in construction and which, because of the peculiar arrangement of its locking bolts, is extremely difficult to open. By judicious changes in the proportioning and arranging of the slots and recesses and in the direction of movement of the various locking bolts, a large variety of puzzle boxes of this type may be readily made, all acting upon the same principle but each being somewhat different in its specific operation from the others.

Having thus described the invention, what is claimed as new is:

1. The combination with a box open at the top and having spaced ends, of inner and outer cover members each divided transversely intermediate their length and both

swingingly mounted at their outer ends upon the ends of the box by common pivot pins, and means for locking the cover members together.

2. The combination with a box open at its top and having spaced ends, of an inner cover including co-acting sections pivoted by their outer ends to the ends of the box, an outer cover including co-acting sections pivoted by their outer ends to the ends of the box, and means for locking the outer sections together when in closed position.

3. The combination with a box open at its top and having spaced ends, of an inner cover including co-acting sections pivoted by their outer ends to the ends of the box, an outer cover including co-acting sections pivoted by their outer ends to the ends of the box, and means for locking the inner cover sections together when in closed position.

4. The combination with a box open at its top and having spaced ends, of an inner cover including co-acting sections pivoted by their outer ends to the ends of the box, an outer cover including co-acting sections pivoted by their outer ends to the ends of the box, means for locking the inner cover sections together when in closed position, and means for locking the outer cover sections together when in closed position.

5. The combination with a box open at its top and having spaced ends, of an inner cover including co-acting sections pivoted by their outer ends to the ends of the box and adapted to swing over the top of the box to close the same, an outer cover including co-acting cover sections pivoted by their outer ends to the ends of the box and adapted to swing over the inner cover to form a second closure, and a locking bolt for securing the inner cover sections together, said locking bolt also securing the outer cover sections together.

In testimony whereof I affix my signature in presence of two witnesses.

CHARLES T. SAND. [L. s.]

Witnesses:

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