Sept. 1, 1931. H. H. HONIGBAUM 1,821,059

INTERFITTING LOCK FOR CONTAINERS

Filed March 28, 1928

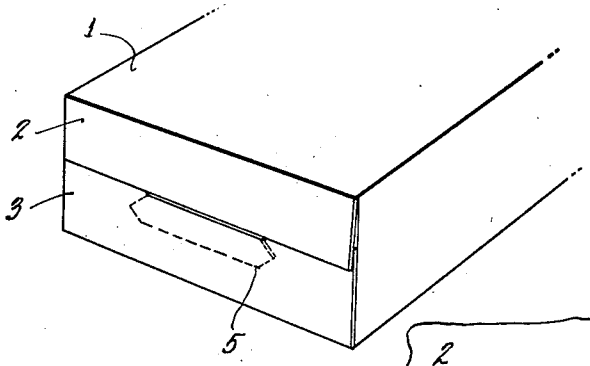


Fig. 1

Fig. 2

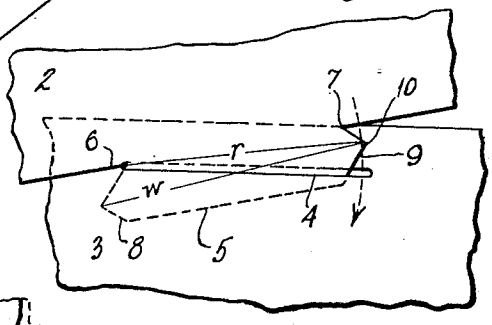


Fig. 3

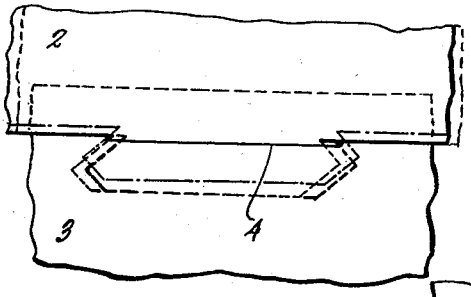


Fig. 4

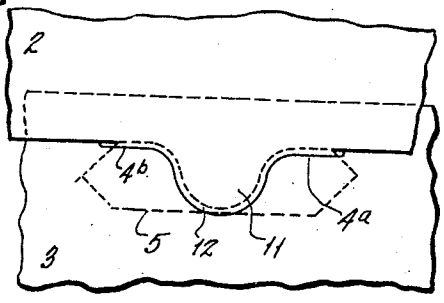
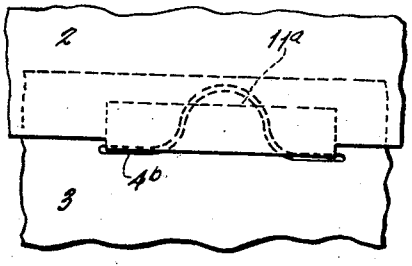


Fig. 5



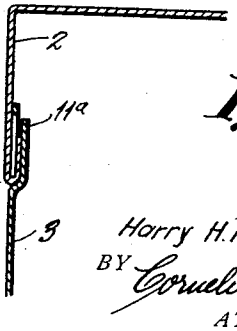


Fig. 6

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Patented Sept. 1, 1931

1,821,059

UNITED STATES PATENT OFFICE

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INTERFITTING LOCK FOR CONTAINERS

Application filed March 28, 1928. Serial No. 265,352.

This invention is an interfitting lock adapted to be incorporated in container construction for the purpose of detachably securing two relatively movable parts together. The lock of this invention is susceptible of broad application, but is particularly intended to be used in connection with paper or cardboard receptacles wherein the receptacle is made from a blank folded in any suitable manner and relatively movable parts secured together by a lock of the character under consideration.

Thus, the invention primarily consists in a lock and the particular use to which the lock is put will vary to suit conditions in the several arts.

Speaking generally, the lock of this invention embodies a tongue associated with one movable part and the other movable part being provided with a slot. The slot may be of different shapes as will be hereinafter more fully explained, but its length is fixed and predetermined. The tongue which cooperates with the slot in the preferred embodiment of the invention is so shaped that the part on which the tongue is mounted must be tilted with respect to the other part in order to introduce the tongue into the slot.

The lateral edges of the tongue are cut in such manner that when such part is tilted as specified, the tongue may be partially introduced and the tilted part thereupon straightened with respect to the other part to cause the tongue to wholly enter the slot. As the tongue enters the slot, the parts are moved with relation to one another in a lateral direction to shift the tongue longitudinally of the slot.

In the preferred form of the invention, the tongue is formed so that its width at the point where it joins the parts with which it is associated is less than the width of the slot, while a portion of the tongue intermediate its length is considerably wider and wider than the width of the slot so that when the tongue is manipulated in the manner described with respect to the slot, it can be wholly introduced into the slot and by a reversal of these operations can be removed therefrom, but if it is attempted to remove the tongue from the slot by a straight pull, the maximum width of the tongue will be presented to the relatively narrow slot, so that the tongue cannot be withdrawn and constitutes with the slot a dependable lock against inadvertent disengagement of the parts.

The present invention contemplates the use of a tongue which lies flat and forms a substantial continuation of the part on which it is formed, but aside from this the invention also contemplates the formation of the slot in such manner as to bring about a bending of the tongue as it is introduced into the slot and to form said tongue into a hook shaped locking element as hereinafter more fully explained.

Features of the invention, other than those specified, will be apparent from the hereinafter detailed description and claims when read in conjunction with the accompanying drawings.

The accompanying drawings illustrate different practical embodiments of the invention, but the constructions therein shown are to be understood as illustrative, only, and not as defining the limits of the invention.

Figure 1 illustrates a lock embodying the present invention associated with an ordinary pasteboard box and utilized in this connection to secure the end flaps of the box in closed locked condition.

Figures 2 and 3 show the manner of introducing the tongue into the slot in a construction such as shown in Figure 1.

Figure 4 illustrates a modified form of the invention, the modification being more particularly with reference to the shape of the slot.

Figures 5 and 6 show further modified forms of the invention.

In considering this invention, I wish it understood that the present lock is adapted for general uses in connection with any kind of container, but, for the purpose of detailed description, I have chosen to show it as forming part of a pasteboard box. In this manner, the invention may be more readily explained and easily understood. Thus, in Figure 1, 1 designates a pasteboard box pro-

vided at the end shown with flaps 2 and 3, which flaps overlap one another and constitute the relatively movable parts which it is desired to secure together against inadvertent release.

Referring to Figures 1, 2 and 3, it will be noted that the part 3 is provided with a slot 4, which extends transversely of said part and is shown as straight. On the part 2 is formed a tongue 5. This tongue is adapted to be passed thru the slot 4 to form the lock. The lateral edges of the tongue, however, are shaped as shown to provide a relatively deep re-entrant notch 6 at one edge and a relatively shallow re-entrant notch 7 at the other edge. These notches extend to the base of the tongue at said lateral edges. The lateral edges are moreover cut away as shown at 8 and 9. Thus when the tongue is introduced into the slot 4 as shown in Figure 2 and the part 2 moved to the left to bring the apex of the notch 6 at one end of the slot, the part 2 may be thereupon swung on a center of which one end of the slot forms the axis, so that the point 10 of the tongue at the opposite edge thereof will take the path indicated by the dotted arrow and pass through the slot 4 with just sufficient clearance to preclude binding. This movement of the part 2 will bring the tongue into the position shown in dotted lines in Fig. 3. If the part 2 is now shifted slightly to the left, the tongue will be so disposed that a straight pull in a direction to remove it from the slot will bring said tongue into the dot and dash line position shown in Figure 3, wherein it will be noted that the increased width of the tongue below the apices of the reentrant portions 6 and 7 will be presented to the slot in such manner as to preclude withdrawal of the tongue through the slot except by a reversal of the steps of assembly hereinbefore explained.

The arrangement shown in Fig. 4 is very similar to that exhibited in Figs. 2 and 3 except that the slot 4*a* which corresponds to the slot 4 is so shaped as to provide at one of its sides a tab 11, so that when the tongue is positioned in the slot in the manner hereinbefore described, the tab 11 will overlie the inner face of the tongue and hold it in face abutting relation to the inner face of the part 3.

In other words, it will hold the tongue 5 against the bending inwardly of the container and will maintain all the parts substantially flat. In Figure 4, the tongue 11 is formed by curving a central portion of the slot downwardly as shown at 12. The arrangement may, however, be reversed so that the central portion of the slot is curved upwardly to form an upwardly extending tongue 11*a* as illustrated in Figures 5 and 6. With this arrangement, however, it will be apparent that instead of maintaining the tongue in substantial alinement with the part 2, the positioning of the tab as shown in Figures 5 and 6 will cause the tongue to bend upwardly and to form a hook as illustrated best in the latter figure.

When the tongue is hooked as specified, the tab will nevertheless maintain that portion of the tongue which is interiorly of the container in face abutting relation with the inner face of the part 3 and will keep the tongue from unbending and becoming unhooked from the slot 4*b* with which it is associated.

The cutting away of the lateral edges of the tongue to provide re-entrant portions for the purpose of producing a lock against the straight pull as described, may be carried out in the arrangement of Figs. 5 and 6 although it is not absolutely essential here, since the tongue is bent back upon itself to form a hook which, of itself, will preclude inadvertent disengagement from the slot.

Thus in Figure 5 the tongue is shown as having straight lateral edges although the re-entrant edges shown in the previous figures of the drawings may be utilized here also.

The tongues shown in the drawings as having cut away lateral edges as specified show these edges as having substantially straight line cuts. In practice, however, these edges may be curved without departing from the invention.

I call particular attention to the fact in connection with the structures shown in Figures 1 to 4 that the distance maximum width of the tab designated *w* is materially greater than the length of the slot, while the distance *r* from the apex of the re-entrant cut 6 to the point 10 is substantially equal to the width of the length of the slot. This proportion of the parts makes it possible to introduce the tongue in the manner described, but when the tongue is straightened out as illustrated in Figure 3, it is impossible to remove the tongue by a straight pull. In order to remove it, it must be manipulated so as to reverse the assembling operations. The arrangement shown therefore constitutes a positive lock against inadvertent disengagement of the tongue from the slot.

The foregoing detailed description sets forth the invention in its preferred practical form and its use in conjunction with cardboard boxes, but I wish it understood that the invention is adapted for general application in the arts generally and that it may be constructed of material other than cardboard. The invention is therefore to be understood as fully commensurate with the appended claims.

Having thus fully described the invention, what I claim as new and desire to secure by Letters Patent is:

1. An interfitting lock for containers embodying two relatively movable parts, one of which has therein a slot which is deflected

laterally for a distance intermediate its ends to form a tab of appreciably less width than the length of the slot, and the other of which parts is provided with a tongue adapted to extend through the slot to overlie the tab in face abutting relation therewith, and said tab being of a width to underlie the greater portion of the width of the tongue.

2. An interfitting lock for containers embodying two relatively movable parts, one of which has therein a slot which is deflected laterally for a distance intermediate its ends to form a tab of appreciably less width than the length of the slot, and the other of which is provided with a flat tongue, all parts of which are of the same thickness and occupy the same plane, the slot extending in the direction of the length of the tongue and the tongue being of greater overall length than the length of the slot and provided at its opposite edges with re-entrant cut outs to permit the tongue to be introduced into the slot by zigzag edgewise manipulation of the tongue relative to the slot while all parts of the tongue remain unbent and continue to occupy the same plane.

3. An interfitting lock for containers embodying two relatively movable parts, one of which has therein a slot which is downwardly curved for a distance intermediate its ends to form a tab of appreciably less width than the length of the slot, and the other of which is provided with a flat tongue, all parts of which are of the same thickness and occupy the same plane, the slot extending in the direction of the length of the tongue and the tongue being of greater overall length than the length of the slot and provided at its opposite edges with re-entrant cuts outs to permit the tongue to be introduced into the slot by zigzag edgewise manipulation of the tongue relative to the slot, one of said re-entrant cut outs being deeper than the other to permit maximum difference in dimension between the maximum length of the tongue and the length of the slot.

4. An interfitting lock for containers embodying two relatively movable parts, one of which is provided therein with a slot and the other of which is provided with a flat tongue, all parts of which are of the same thickness and occupy the same plane, the slot extending in the direction of the length of the tongue and the tongue being of greater overall length than the length of the slot and provided at its opposite lateral edges with re-entrant cut outs so shaped as to permit the tongue to be introduced into the slot by zigzag edgewise manipulation of the tongue relative to the slot without bending of any part of the tongue, and while all parts of the tongue remain in the same plane, the edges of both of said re-entrant cut outs extending laterally beyond the opposite ends of the slot, after the tongue has been fully inserted in flat condition, to engage with the opposite ends of the slot and thus lock the tongue against inadvertent disengagement from the slot.

5. An interfitting lock for containers embodying two relatively movable parts, one of which is provided therein with a slot and the other of which is provided with a flat tongue, all parts of which are of the same thickness and occupy the same plane, the slot extending in the direction of the length of the tongue and the tongue being of greater overall length than the length of the slot and provided at its opposite lateral edges with re-entrant cut outs so shaped as to permit the tongue to be introduced into the slot by zigzag edgewise manipulation of the tongue relative to the slot without bending of any part of the tongue and while all parts of the tongue remain in the same plane, one of said re-entrant cut-outs being deeper than the other to permit maximum difference in dimension between the maximum length of the tongue and the length of the slot, and the edges of both of said re-entrant cut outs extending laterally beyond the opposite ends of the slot, after the tongue has been fully inserted in flat condition, to engage with the opposite ends of the slot and thus lock the tongue against inadvertent disengagement from the slot.

In testimony whereof I have signed the foregoing specification.

HARRY H. HONIGBAUM.