April 13, 1943. G. V. POE 2,316,362

PAPER BOX

Filed Oct. 22, 1942

FIG. 1

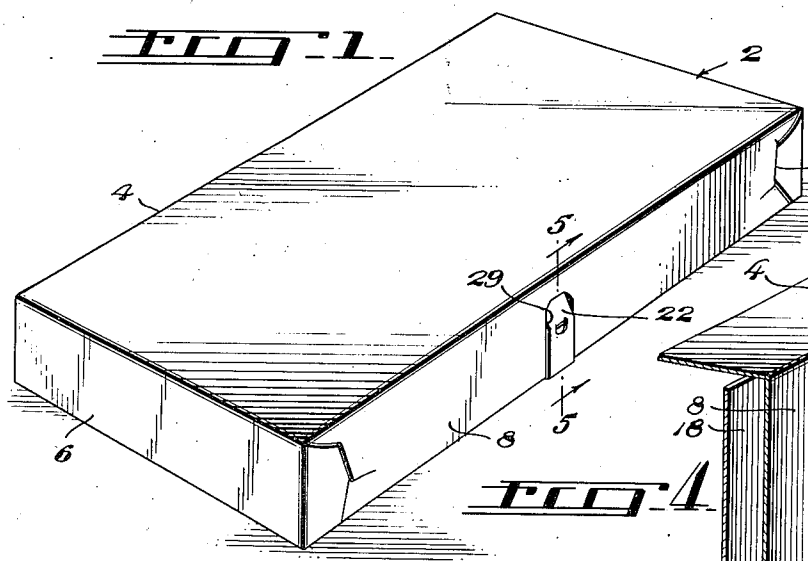


FIG. 4

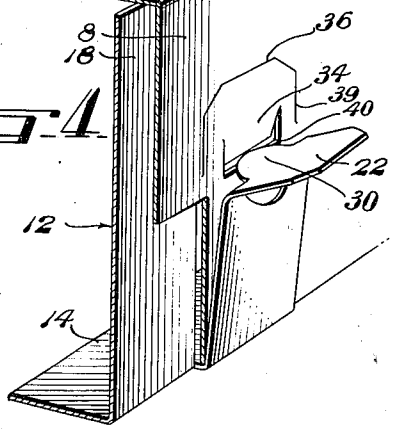


FIG. 2

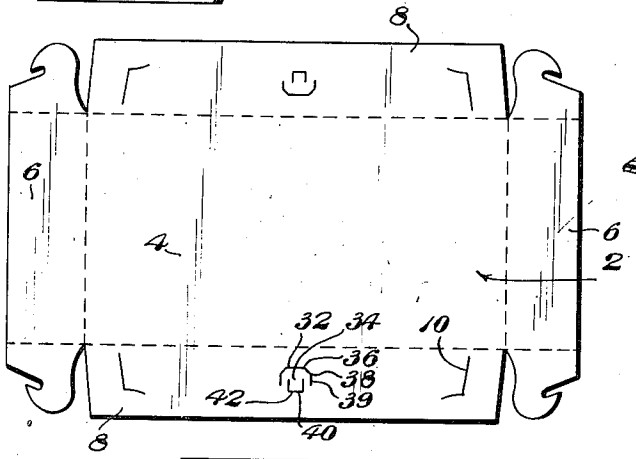


FIG. 5

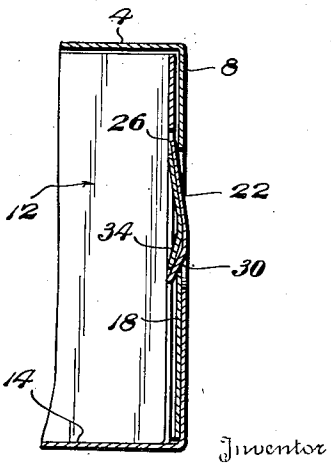
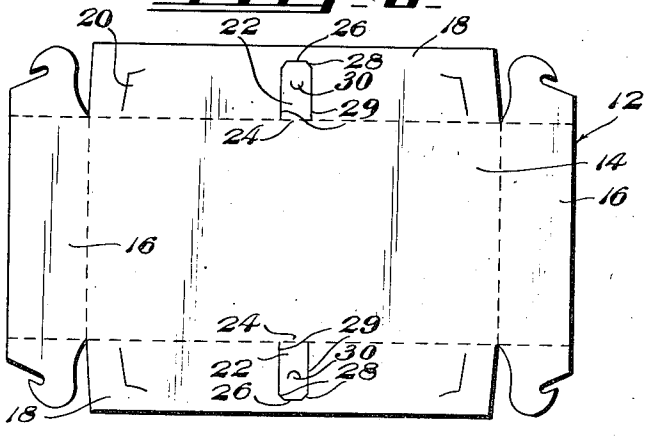


FIG. 3



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PAPER BOX

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Application October 22, 1942, Serial No. 463,008

11 Claims. (Cl. 229—45)

This invention relates to paper boxes and, more particularly, to locking tongues for holding the separable tray and lid portions of a paper box together.

The primary object of the invention is to provide inter-engaging locking tongues on the portion side walls of the tray and lid of a paper box which lie adjacent when the box is closed so as detachably to hold the lid against removal. In a box of the type ordinarily used for laundry, it is intended to provide a locking tongue arrangement which, while unobtrusive and sufficiently small so as not to weaken the box structure, nevertheless is sufficiently strong to transmit the entire load when the full box is lifted by its lid. Furthermore, it is an object so to form the locking tongues that, when once interlocked, they will not accidentally disengage under strains caused by lifting the load by the lid, stacking loaded boxes on top of one another, or by rough handling. With all this, it is particularly intended that the tongues be easily manipulatable by rapid, almost automatic manual operation without vexatious fitting, and that they be readily disengageable without tearing the package or causing negative reaction on the part of the consumer.

More specifically, it is an object to provide an elongated locking tongue struck from the side wall of a tray, the locking tongue extending upwardly from the base of the side wall where it turns from the bottom to a region not far from the top edge of the box. The unusual length of the tongue provides extra strength in that movement through a comparatively wide arc of the top of the tongue, caused by relative lateral movement between the lid and tray, causes relatively little tearing movement at the base of the tongue. The length further allows the required bending of the tongue for insertion and removal. The top of the tongue is preferably flat with diagonal shoulders sloping downwardly at the corners. A slot complementary with the top end of the tongue is cut in the side wall of the box, the slot being slightly below the tongue for receiving it with a snap action when the tongue is pushed inwardly. Before this is done, however, an auxiliary tab struck from the main tongue and extending in the opposite direction is inserted in an auxiliary slot in the side wall of the lid flexing back the end of the main tongue.

It is thus intended to provide a locking arrangement having these and other advantages which will be apparent from the following specification and drawing in which:

Figure 1 is a perspective view of the assembly;

Figure 2 is a plan view showing the blank from which the lid is formed;

Figure 3 is a plan view similar to Figure 2 but showing the blank from which the bottom is formed;

Figure 4 is a perspective view showing, in detail, the step of inserting the tab into the auxiliary slot; and,

Figure 5 is an enlarged sectional view taken along the line 5—5 of Figure 1 and looking in the direction of the arrows.

Referring now to the drawing in which like reference numerals denote similar objects, the invention is embodied in a laundry box having, conventionally, a lid 2 which includes top, end and side walls 4, 6, and 8, respectively, bent downwardly from the lid and joined at the corners as shown at 10. The tray 12 which the top telescopes over is comprised of bottom, end, and side walls 14, 16, and 18, respectively, bent up from the bottom and joined at the corners as shown at 20.

The inventive features reside in main locking tongues 22 struck from the material forming the side walls 18 of the tray. Since the tongues are identical on each side only one will be described, it being apparent that similar tongues may likewise be provided at the ends of the box. As will be seen from the drawing, the main locking tongue 22 extends upwardly from the fold line 24 which joins the bottom 14 and side wall 18 of the tray so that tongue 22 may be said to connect with the bottom 14 and to be independent of side wall 18. It may likewise be noted that the free end or top 26 of the tongue lies near the upper portion of the box and that diagonal shoulders 28 connect the horizontal top 26 with the straight vertical sides 29 of the tongue. An auxiliary tab 30, struck from tongue 22 so as to extend in the opposite direction, is provided slightly above the middle of the tongue.

In the side wall 8 of the lid 2 a main slot 32 is cut so as to form a short tab 34, the main slot having a horizontal top 36, diagonal shoulders 38 and straight short vertical sides 39. It should be noted particularly that while main slot 32 is substantially complementary with the upper portions of tongue 22, the horizontal top and diagonal shoulders of the slot 36, 38 are slightly below the top and shoulders 26, 28 of the tongue so that when the tongue is pushed inwardly, it will snap past and lock behind the edges of the slot. An auxiliary slot 40 is cut in side wall 8 at the base of short tab 34 for receiving auxiliary tab

30, the auxiliary slot being substantially U-shaped with the bight 42 of the U being substantially straight and horizontal whereas the auxiliary tab 30 is of curved U shape. Furthermore, bight 42 of slot 40 lies above the lower free end of tab 30 for reasons apparent below.

When lid 2 is telescoped downwardly on tray 12, tongue 22 is left on the outside so as to overlie the side wall 8 of the lid. Tab 22 is then taken, preferably with the operator's forefinger lying near or slightly below auxiliary tab 30 and with thumb behind the upper end of the tongue and the upper end is then flexed outwardly so that the lower free end of tab 30 swings upwardly and inwardly as the tab is bent. This step is illustrated in Figure 4. By pushing inwardly on tongue 22, tab 30 is inserted through slot 40 and as the upper free end of tongue 22 is straightened and pressed against edge 36 of main slot 32, the lower end of tab 30 is thereby swung downwardly behind side wall 8 of the lid below slot 40. Then by slight inward pressure, the upper end of tongue 22 is snapped through main slot 32 and lodged behind side wall 8 of the lid above edge 36 of the main slot. The bevelled shoulders 28 and 38 of tongue 22 and main slot 32 cooperate as guides to facilitate the snap action.

When it is desired to open the box the procedure is reversed by engaging a fingernail behind tongue 22, preferably slightly below a shoulder 28, and snapping the upper free end of the tongue outwardly where it can be gripped for pulling tab 30 from auxiliary slot 40.

It is to be understood that the invention may be applied to one or more sides of any box formed of somewhat flexible material, and that the structure may be inverted or applied to boxes opening sideways, the invention being limited only by the scope of the following claims.

I claim:

1. In a box including a tray member, and a lid member having adjacent side walls vertically telescoping with one another, a vertically disposed tongue struck from a side wall of one member and having a free end disposed in one direction, the tongue being adapted to overlie the adjacent side wall of the other member, a tab struck from said tongue and being disposed in a direction opposite from said one direction, the other member having a first slot in the side wall thereof for receiving said tongue, and a second slot for receiving said tab.

2. The combination claimed in claim 1, the first slot being set-back so as to lie beneath the free end of said tongue whereby to provide a snap-action when said tongue is pushed into said slot.

3. The combination claimed in claim 1, the first slot being generally U-shaped and complementary in width with the free end of said tongue, but being set-back so that the bight of the U underlies the free end of the tongue, whereby to provide a snap-action when said tongue is pushed into said slot.

4. The combination claimed in claim 1, said tab and second slot being generally U-shaped.

5. The combination claimed in claim 1, said tab and second slot being generally U-shaped, the bight of the U-shaped second slot underlying the base of the tab.

6. In a box including a tray having a bottom and a side wall folded upwardly therefrom, and a lid having a side wall telescopically engageable over the side wall of the tray, a tongue struck from the side wall of the tray, said tongue having its free end extending upwardly and having its lower end attached adjacent the bottom, whereby the tongue may overlie the side wall of the lid, a tab struck from said tongue and having its free end extending downwardly, the side wall of said lid having a first slot for receiving said tongue and a second slot for receiving said tab.

7. The combination claimed in claim 6, said first slot being slightly below the end of said tongue, whereby to cause said tongue to snap therethrough when pushed inwardly.

8. The combination claimed in claim 6, the free end of said tongue being substantially horizontal and having inclined shoulders at the corners thereof, said first slot being substantially complementary with the free end of said tongue, but having the horizontal and shoulder portion thereof slightly below those of the tongue.

9. The combination claimed in claim 6, said tab and said second slot being substantially U-shaped.

10. The combination claimed in claim 6, the second slot being substantially the shape of a U having a straight horizontal bight, the tab being substantially the shape of a U having a curved bight and legs, the bight of the slot being substantially on the level of the base of the tab, whereby the tab may be inserted through the second slot by flexing the end of the tongue outwardly.

11. The combination claimed in claim 6, the tab and second slot being substantially U-shaped, the bight of the second slot being substantially above the end of the tab, whereby the tongue may be flexed outwardly for inserting the tab into the slot, the tongue having straight vertical sides, a horizontal top edge, and inclined shoulders at the corners, the first slot being substantially complementary with the upper outline of the tab but with the horizontal and inclined portions thereof slightly below those of the tongue whereby the tongue will snap through the slot when pressed inwardly.

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