May 2, 1944. J. H. DEVINE 2,347,670

LUNCH BOX

Filed March 27, 1942

Fig. 1

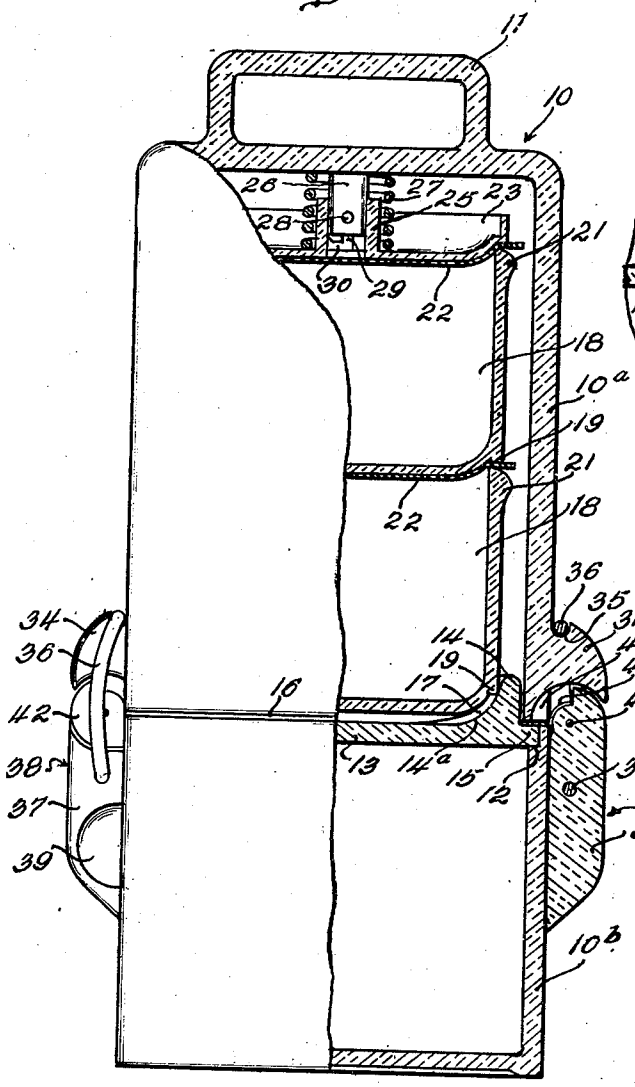


Fig. 2

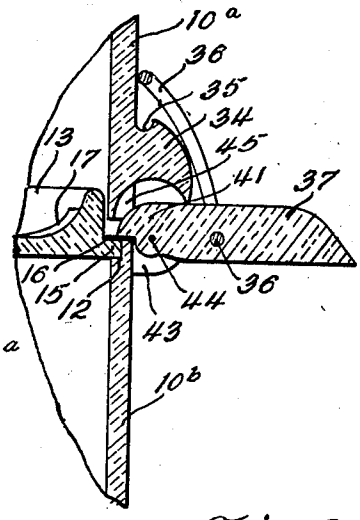


Fig. 3.

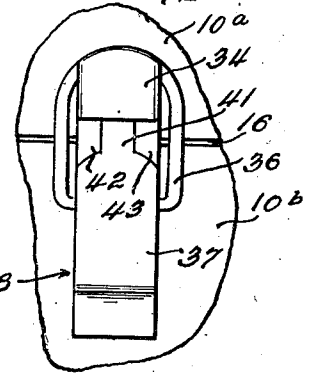


Fig. 4

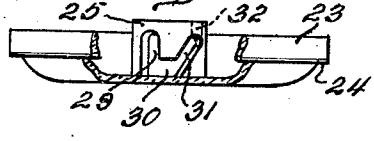
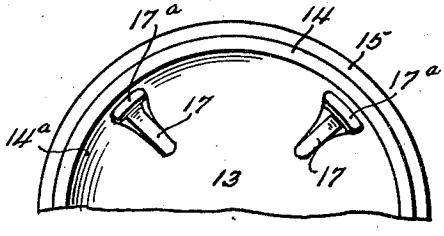


Fig. 5



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UNITED STATES PATENT OFFICE

2,347,670

LUNCH BOX

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4 Claims. (Cl. 206—4)

This invention relates to containers for comestibles, and more particularly to thermally insulated lunch boxes for retaining comestibles in either a hot or cold condition.

Broadly, the present invention contemplates the provision of a lunch box of the character described having a high thermal efficiency so as to reduce to a minimum the loss of heat from the food tanks, as well as from the box as a whole.

Specifically, the present invention is in the nature of an improvement over the lunch boxes shown in my Patents Nos. 2,147,886 and 2,184,336, granted February 21, 1839, and December 26, 1939, respectively. In those patents, lunch boxes are disclosed comprising spaced inner and outer casings formed of metal and joined together at their open ends by a collar of insulating material. A closure member for the casings receives means, also of double wall construction, for supporting a plurality of superposed metal food tanks within the inner casing. Yieldable means is interposed between the uppermost food tank and the casing (or closure member) for imposing an axial thrust on the food tanks to maintain them in their nested relationship as well as to restrain any lateral movement thereof.

The lunch box of the present invention is a departure from lunch boxes of the character above described in that it employs a casing and closure member of single wall construction, preferably being formed of a plastic material. This dispenses with the rather complicated procedure necessarily involved in positioning one casing internally of the other and securing them together by an insulating collar, which collar also must provide an air tight seal between the casings, as well as dispensing with the required dies and assembly jigs necessary to carry out the above operations. The food tanks are of glass, such material being a better heat retardant than aluminum of which the tanks formerly were made, and being impervious to the action of any food acids thereon, which is not the case with metal tanks. In the interests of sanitation, paper covers are employed for the food tanks. Such covers being flexible and not adapted for the imposition of an axial thrust thereon, new and improved means of simple construction, and which may readily be assembled or disassembled for cleaning purposes, is provided to secure such action in a new and improved manner. The supporting means for the tanks is of novel construction and provides for positively centering the tanks thereon. Novel latch means is also provided to break the vacuum that is developed in lunch boxes of this character, and to thereby permit separation of the component parts of the lunch box in the manner hereinafter described.

Other features and advantages of the invention will become apparent from the following detailed description of the invention when taken in connection with the accompanying drawing, in which:

Figure 1 is a view, partly in vertical section and partly in front elevation, of a lunch box embodying the principles of the present invention;

Figure 2 is a fragmentary vertical sectional view of a portion of the lunch box illustrating the action of the latch means for "breaking" the vacuum therein;

Figure 3 is a front elevational view of the latch means;

Figure 4 is a front elevational view, partly in vertical section, of a plate employed in connection with the yieldable means for urging the tanks together; and

Figure 5 is a fragmentary plan view of the lowermost food tank supporting means.

Referring now in detail to the drawing, the instant lunch box 10 comprises the upper and lower casings 10*a* and 10*b*, respectively. Preferably these casings are of generally cylindrical shape, although they may be of any other suitable or preferred form, and are constructed of a plastic material with walls of appreciable thickness. The upper casing is provided with the integral handle 11 for carrying purposes.

Lower casing 10*b* is for the reception of articles of food such as bread, cake, pie, etc., and adjacent its upper open end is provided with the shoulder 12 upon which seats a circular tank supporting plate 13. This plate, also formed of a plastic material, has a relatively snug fit in the casing, and inwardly of its periphery is provided with the integral upwardly extending annular ring 14. The flange 15, defined between the outer vertical wall of ring 14 and the periphery of the plate, terminates flush with the upper surface of the casing 10*b* and furnishes a seat for a gasket 16 that provides a seal between the upper and lower casings when they are secured together. Inwardly of the ring 14, the sloping wall 14*a* thereof provides a dish-like receptacle for the reception of a food tank, such tank seating on tank supporting members 17 formed integrally with and projecting inwardly from wall 14*a*. These tank supporting members are rib-

shaped with flat upper seating surfaces 17a, the ribs conforming in curvature with the curvature of the wall 14a so that a tank placed in the receptacle at an angle will slide on the ribs and properly position itself upon the surfaces 17a. There may be three or more of these supporting members 17.

Two food tanks 18 are shown in the instant device, although a greater number may be employed if desired. The tanks are of identical construction and may thus be used interchangeably. Adjacent its lower end, each tank is provided with the shoulder 19 for seating on the tank supporting members 17, or on the enlarged shoulder 21 formed adjacent the upper open end of the tank. Tank covers 22, formed of paper, conform in shape with the bottom of the tanks.

The necessity of providing means for yieldingly urging the food tanks together and restraining lateral movement thereof toward the casing has been pointed out in my patents above referred to. In the instant case, such means comprises a plate 23 having shoulders 24 adapted to seat upon the shoulder 21 of the uppermost food tank, the tank cover 22 being interposed therebetween. This plate is also of plastic and, centrally thereof, is provided with an integral sleeve 25 extending upwardly therefrom for the reception of a plunger 26, which plunger is formed integrally with the upper wall of casing 10a to depend centrally therefrom. The sleeve and plunger may, if desired, be formed of metal and connected suitably to the plate and casing, respectively. A compression spring 27, embracing the sleeve and plunger and confined between the plate and top wall of casing 10a, normally urges the plate into contact with the upper food tank 18 and the tanks together. The spring, plunger, and sleeve are maintained in their assembled relationship by a pin 28 that evtends horizontally through the lower end of the plunger to project outwardly therefrom at diametrically opposite sides for engagement with substantially V-shaped slots in sleeve 25. These V-shaped slots comprise the substantially vertical slot 29 communicating with a transverse slot 30, which slot in turn communicates with an angularly disposed slot 31, this latter slot communicating with a notch 32 opening through the upper surface of the sleeve. Such an arrangement of slots is formed in diametrically opposed sides of the sleeve with the arrangement of slots on one side of the sleeve in reverse order with respect to the slots on the opposite side of the sleeve in order that notches 32 will be diametrically opposed. For the sake of clearness, the slots are shown only on one side of the sleeve in Figure 4. By placing the projecting portions of pin 28 in notches 32 and then pressing vertically upwardly on plate 23, the projecting portions of the pin will enter slots 31 which, upon continued upward pressure on the plate, has the effect of rotating the plate one quarter turn to dispose the projecting portions of the pin at the lower end of slots 29, whereupon release of the plate will cause the plate 23 to move outwardly relatively to plunger 26, the pins 28 riding in slots 29 until they strike the upper limit of said slots 29. The plate is thus normally held on plunger 26 and may be removed therefrom by operations the reverse of those just described. When the casings 10a and 10b are clamped together, the spring 27 is under compression, the pins 28 being disposed approximately midway of slots 29, whereby the plate may yield vertically in either direction.

It has been found that when the hot food is confined in lunch boxes of the character described a vacuum is developed in the casing 10a, of such proportion as to overcome the natural tendency of spring 27 to force the food tanks out of casing 10a when it is removed from casing 10b. The result is that upon separation of the casings, the casing 10a will carry with it the supporting plate 13, which plate then requires forcible removal from the casing. To overcome this difficulty, the novel latch means shown has been devised. Such latch means comprises the lug 34 formed integrally with and positioned adjacent the open end of casing 10a and provided with the notch 35 for reception of the bail 36. The opposite ends of bail 36 are pivoted in the lever arm 37 of the altch member 38 between the hand holes 39 and the pivot pin 44. Arm 37 is mounted upon casing 10b by the short lever arm 41 of reduced width which is disposed between a pair of circumferentially spaced ears 42—43 projecting outwardly from casing 10b adjacent its open end. The pivot pin 44 is fixed in ears 42—43 and passes through arm 41 to thereby pivotally support latch member 38 upon casing 10b. The disposition of pin 44 with respect to latch member 38 and lug 34 is such that as arm 37 is swung to the open position it will first contact the lug 34. At the same time, arm 41 is swung toward the casing 10a and through the notches 45 therein. This latter arm is of such length as to be projected for a short distance over flange 15 of plate 13, when arm 37 is swung in the manner described. Upon slight further swinging movement of the arm 37, lug 34 and casing 10a will be moved upwardly carrying with it plate 13 until such time as the upward movement of casing 10a and the swinging movement of arm 41 brings such latter arm and flange 15 of plate 13 into contact, whereupon continued upward swinging movement of arm 37 and contineu downward swinging movement of arm 41 will act to forcibly separate the casing 10a and plate 13. It will be obvious then that the simultaneous action of the camming effect of lever 37 upon lug 34, and the hold down action of lever 41 on flange 15 will effectively "break" the vacuum in casing 10a and permit its removal independently of plate 13 and the food tanks.

As will be understood by those skilled in the art, while I have shown a certain preferred embodiment of my invention, I do not wish to be limited thereto, since changes may be made therein without departing from the spirit and scope of the invention.

I claim:

1. In a device of the class described, a casing comprising upper and lower sections, food tank supporting means in said lower section and confined entirely within the walls thereof, latch means comprising a lug on said upper section and a latch member on said lower section, said upper section having a notch therein below said lug to permit access to a portion of said tank supporting means, and said latch member comprising a swingable lever having a portion adapted for engagement with said lug to force said sections apart and a second portion for projection into said notch and over said tank supporting means.

2. In a device of the class described, a casing comprising upper and lower sections, food tank supporting means in said lower section and confined entirely within the walls thereof, a lug on said upper section, said upper section having

a notch therein below said lug to permit access to a portion of said tank supporting means, a pair of circumferentially spaced ears projecting from said lower section, and a lever pivotally mounted between said ears, said lever being disposed to have a portion engage said lug and force said sections apart and a portion for simultaneously projecting into said notch over said tank supporting means upon swinging of said lever into engagement with said lug.

3. In a device of the class described comprising a casing adapted for the reception of a plurality of superposed food tanks, of means for yieldingly urging said tanks together and restraining lateral movement thereof, comprising in combination, a plate seating on the uppermost food tank, a sleeve fixed to and projecting upwardly from said plate and having a plurality of slots therein, a plunger fixed to and depending from said casing for engagement in said sleeve, and pin means on said plunger engaging in the slots in said sleeve to secure the plate thereto.

4. In a device of the class described comprising a casing adapted for the reception of a plurality of superposed food tanks, of means for yieldingly urging said tanks together and restraining lateral movement thereof, comprising in combination, a plate seating on the uppermost food tank, a sleeve fixed to and projecting upwardly from said plate and having vertically and angularly disposed slots connected by a transverse slot, a plunger fixed to and depending from said casing for engagement in said sleeve, and pin means on said plunger adapted for engagement in said slots, said angularly disposed slots serving to rotate said plate one-quarter turn to dispose said pin means in said vertical slots upon engagement of said plunger in said sleeve, and said vertical slots thereafter permitting relative movement between the plate and plunger within the limits of said vertical slots.

JAMES H. DEVINE.