United States Patent

[11] **3,552,551**

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[54] **FILM REEL SHIPPING CASE**
10 Claims, 11 Drawing Figs.

[52] **U.S. Cl.** **206/52,** 220/31, 220/60
[51] **Int. Cl.** **B65d 43/10,** B65d 85/67
[50] **Field of Search** ..... 206/52(F), 52, 46(HwDE), 62(P.R.), 1.5, 2; 220/60, 4(E), 31(S.R.), 31

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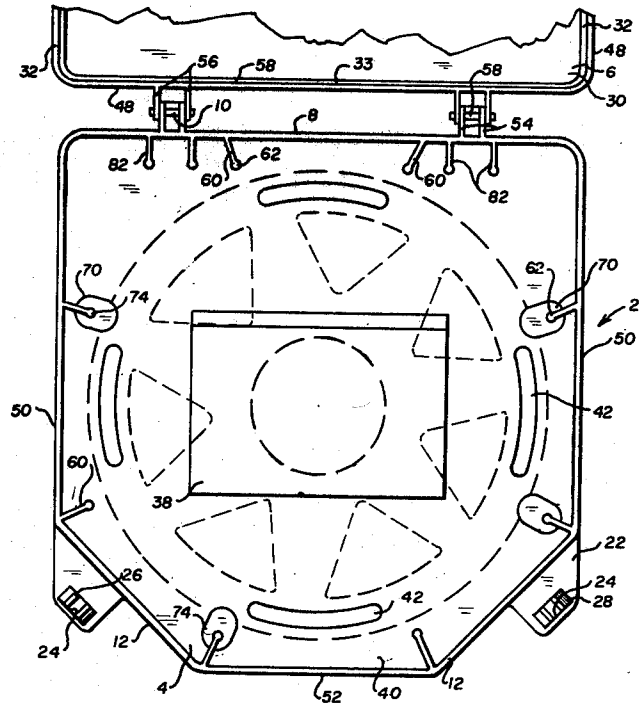
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ABSTRACT: This invention relates to a film reel shipping case having a moulded body and lid hingedly attached thereto and releasably fastened at the corners remote from the hinges by bifurcated fasteners, the legs of which are normally spring-biased apart, but which can be squeezed together by normal finger pressure to release same. Inside the body are a plurality of integrally formed inwardly directed webs positioned to engage the circumferential margin of a shallow cylindrical reel can and hold same in spaced relation to the sidewalls. Removable spacers are also provided that slip onto certain of these webs and cooperate therewith to engage and hold the reel alone securely in place by taking up the space in the case ordinarily occupied by the reel can.



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SHEET 1 OF 3

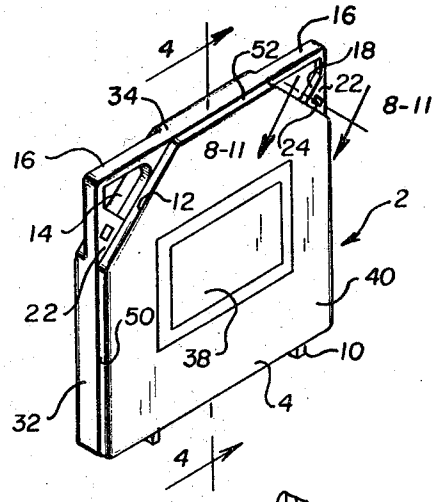


FIG. 1

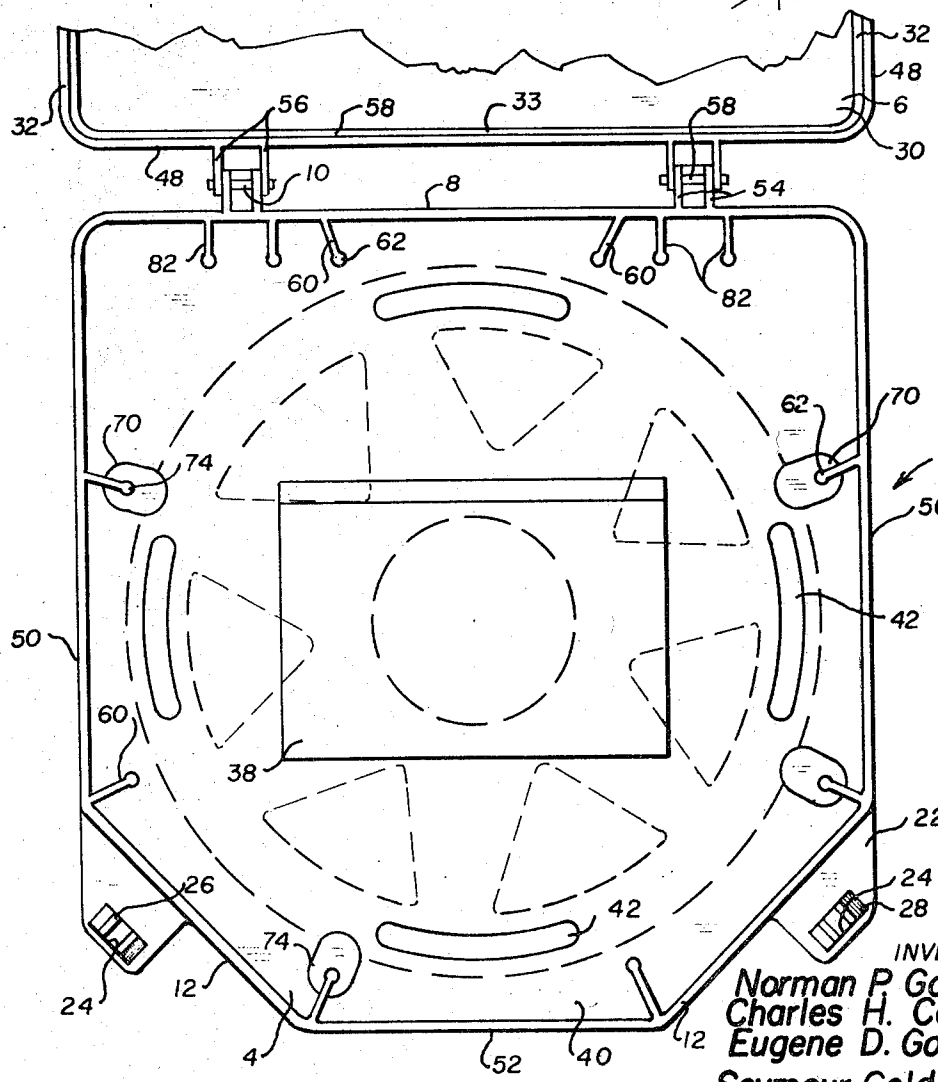


FIG. 2

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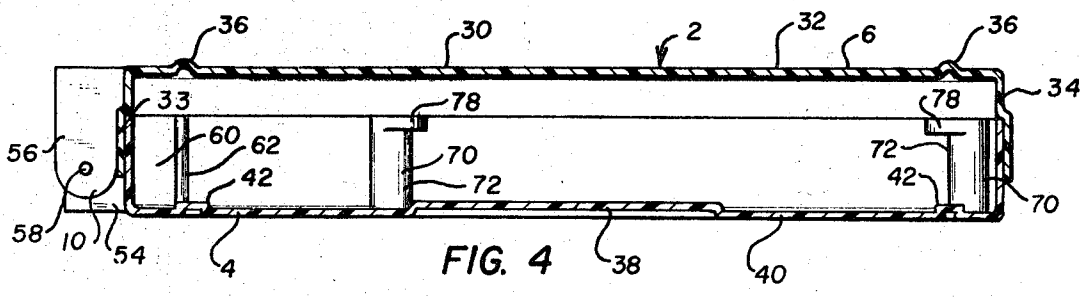


FIG. 4

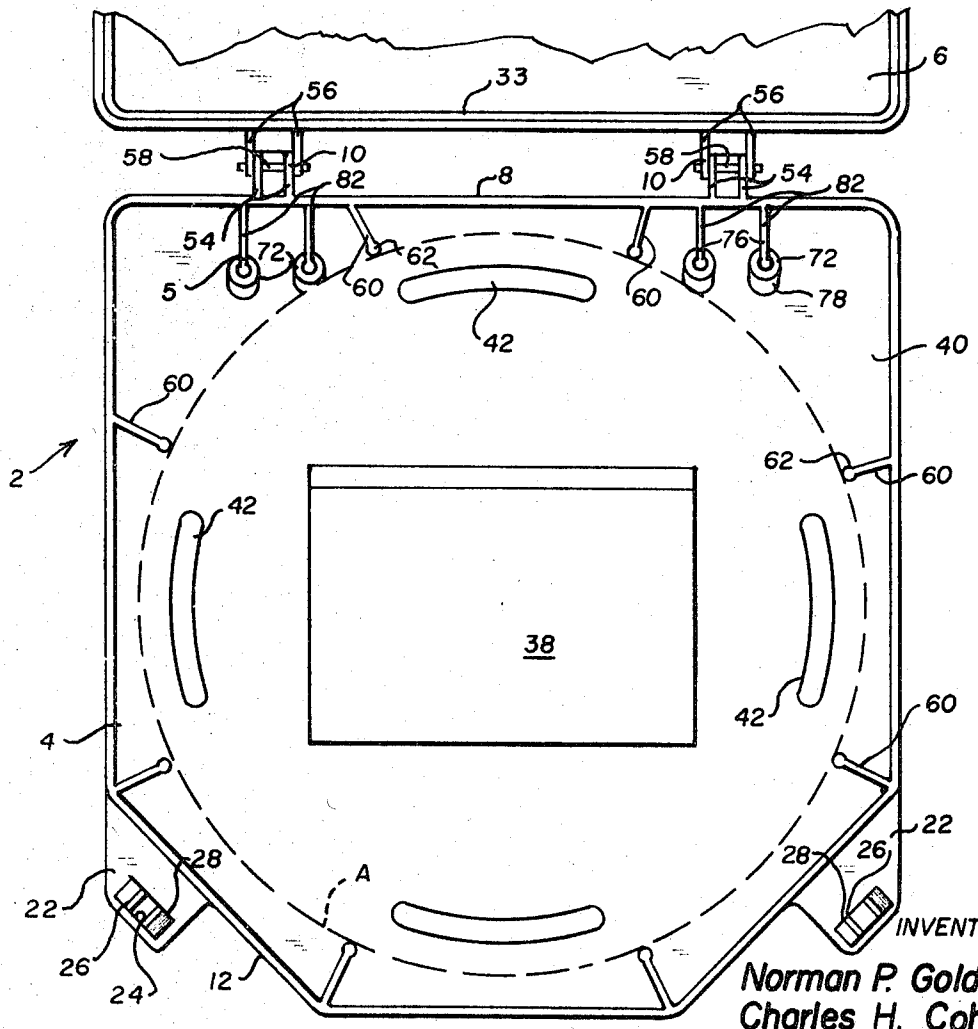


FIG. 3

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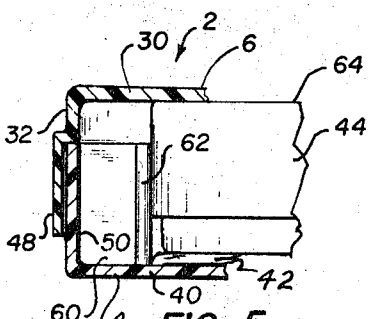


FIG. 5

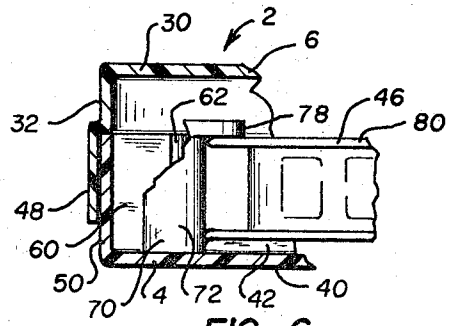


FIG. 6

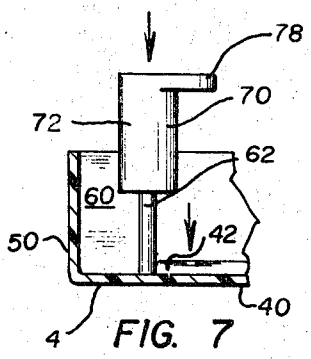


FIG. 7

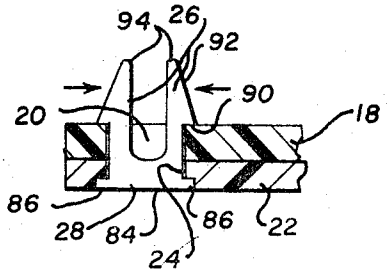


FIG. 10

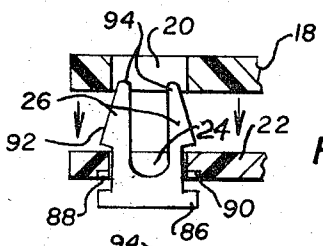


FIG. 8

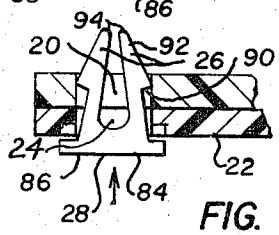


FIG. 9

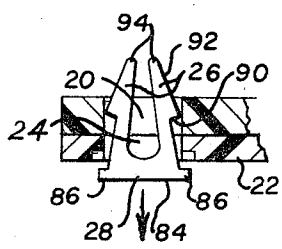


FIG. 11

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FILM REEL SHIPPING CASE

In U.S. application Ser. No. 696,272, now U.S. Pat. No. 3,441,128 issued recently the the assignee of the instant application, a shipping case for film reels and the like was disclosed and claimed which, in certain respects, resembled that of the present invention in that it also had truncated corners opposite the hinged edge fitted with latches and protected by carrying handles. It has recently been determined, however, that the aforementioned reel case, while offering many significant improvements over the prior art, also had certain deficiencies.

For instance, the latch elements that hold the lid closed atop the body were reasonably complicated to manufacture, install and even to use, thus increasing the expense of the carrying case unnecessarily and making it somewhat unhandy. Of even greater significance, however, was the absence of adequate protection for the film reel under certain handling and shipping conditions. The film is, of course, quite valuable and the prime function of the shipping case is to protect it from damage in the mails.

One problem with the prior art film reel shipping cartons including the previously mentioned one patented by assignee, is that in order to keep the film reel from rattling around inside the shipping case, the sidewalls of the latter were located to engage the circumferential margins of the reel or the reel can housing same in tangential relation. This meant that a sharp impact blow against the side of the shipping case would be transmitted by the sidewalls thereof directly to the can or reel resting thereagainst, thus damaging the latter. In the case of moulded plastic reels and reel cans, they would often crack or break while metal ones would dent or bend. In wither case, any attempt to use a broken or bent reel would likely result in damage to the film.

Another problem was the inability of the prior art shipping cases to accommodate the film reels both with and without the reel cans. Sometimes the film reels are shipped and handled in the shipping cases, without first being protected by placing same in a reel can. Obviously, the reel alone can move around considerably in a shipping case designed to fit one housed in a reel can. Conversely, a shipping case designed to accommodate the reel alone will be too small to accept one in a can, the latter being the preferred mode of shipment.

Accordingly, it has now been found that these and other shortcomings of the prior art film reel shipping cases can be, in large measure, eliminated by incorporating the improvements forming the subject matter of the instant invention. To begin with, the latch members comprise springable foreshortened clothespinlike bifurcated elements, the arms of which extend through aligned apertures in a pair of tabs carried by the body and lid arranged in face-to-face relation. Shoulders on the inclined surface of these legs releasably latch in atop the tab in the lid when the legs spring apart under the influence of their normal bias while ears carried by the head are acting as stops beneath the tab on the body.

Inside the body moulded integrally therewith are a plurality of inwardly directed webs terminating at their free ends in upstanding cylindrical enlargements positioned to engage the circumferential margin of a reel can and hold same in spaced relation to the sidewalls. When the reel is to be shipped in the case without a can, removable spacers are mounted upon the cylindrical enlargements of certain of these tabs to take up the additional space left following removal of the can. In addition, these spacers carry inwardly projecting overhanging ears adapted to overlie the upper film reel flange and, once again, take up the extra space left between the top and bottom of the case following removal of the reel can.

Additional webs located along the hinge-carrying endwall of the body reinforce the latter in the area of the hinges. The webs are preferably shaped much like the centering webs so as to provide means for storing the spacers when not being used.

It is, therefore, the principal object of the present invention to provide a novel and improved shipping case for film reels and the like.

A second objective is the provision of a unit of the type aforementioned which is designed to accommodate the reel alone or one housed within a film reel can.

Another object is to provide a device of the type aforementioned wherein the body is provided with integrally formed centering webs adapted to hold the reel can in spaced relation to the side and end walls.

Still another object is to provide removable spacers mountable on the centering webs to hold the reel alone centered within the body.

An additional object is the provision of novel clothespinlike bifurcated springable latch elements that fit into aligned apertures in overlapping tabs on the body and lid to hold the case closed.

Further objects of the invention herein disclosed and claimed are to provide a shipping case for film reels that is simple, inexpensive, rugged compact, versatile, easy to use and even decorative in appearance.

Other objects will be in part apparent and in part pointed out specifically hereinafter in connection with the description of the drawings that follows, and in which:

FIG. 1 is a perspective view of the shipping case as seen from a position above and to the left thereof;

FIG. 2 is a greatly enlarged top plan view showing the case in open position and the spacers in place on the centering webs, the greater portion of the lid having been broken away to conserve space;

FIG. 3 is a top plan view similar to FIG. 2 except that the spacers are stored on the reinforcing webs so as to leave the centering webs free to receive a reel can;

FIG. 4 is a section taken along line 4–4 of FIG. 1;

FIG. 5 is a further enlarged fragmentary section showing how the centering webs engage the circumferential margin of the film reel can and hold same away from the side and endwalls;

FIG. 6 is a fragmentary section similar to FIG. 5 and to the same scale showing the centering web fitted with a spacer to hold the reel all by itself down snug against the raised portions in the bottom of the body as well as spaced inside the sides and ends;

FIG. 7 is still another fragmentary section similar to FIGS. 5 and 6 showing the manner in which the spacers are mounted and demounted from the cylindrical enlargements on the webs;

FIG. 8 is a fragmentary sectional detail to the same scale as FIGS. 5–7 showing the bifurcated latch member carried in the aperture in the body with its legs positioned to enter the registering aperture in the lid;

FIG. 9 is a fragmentary sectional view like FIG. 8 except that the legs of the latch element have moved farther into the lid aperture with the lid closed atop the body;

FIG. 10 is another fragmentary sectional view much like that of FIGS. 8 and 9 showing the latch in locked position; and,

FIG. 11 is still another fragmentary section substantially identical to FIG. 9 except that the latch member is shown released an moving down instead of up.

Referring now to the drawings for a detailed description of the present invention and, initially, to FIGS. 1–4, inclusive, for this purpose, reference numeral 2 has been selected to designate the entire shipping container in a general way and it will be seen to include an open-topped body 4 and a lid 6 attached to the rear end wall 8 thereof by hinge members 10. In the particular form shown, both the body and lid are of one-piece moulded construction and the body has the corners 12 thereof remote from the hinged rear end wall 8 truncated at approximately a 45° angle. The corresponding corners 14 of the lid are similarly truncated except that they also include integrally formed handles 16 extending on around the truncated corners as shown in FIG. 1. In FIGS. 8–11, an integral tab 18 is illustrated which projects from the truncated corners of the lid and which partially fills the opening in the handle. It will be noted that this tab 18 has an aperture 20 therethrough. A

similar tab 22 is provided on the truncated corners of the body positioned to lie in face-to-face contacting relation against the tab 18 on the lid when the latter is closed as shown in FIGS. 9, 10 and 11. An aperture 24 in the body tab 22 registers with the aperture 20 in the lid tab 18 as to receive the legs 26 of the bifurcated latch element 28 that will be described in detail presently in connection with FIGS. 8—11.

The lid 6 has an essentially planar top 30 bordered by sidewalls 32 and end walls 33 and 34. In the particular form shown, the top has raised feet 36 formed by embossing the underside thereof. These feet support the unit upside down in spaced relation above a supporting surface. A rectangular inset portion 38 is provided in the bottom 40 of the body to accept a shipping label. Raised feet 42 on the bottom of the body raise the level of the reel can 44 or the reel 46 up to the height of the recessed inset label holder 38 so that they will not rock upon the latter.

The sidewalls 32 and end walls 33 and 34 of the lid include an outwardly offset skirt-forming portion 48 adapted to slip down over the sidewalls 50 and endwalls 8 and 52 of the body as shown most clearly in FIG. 4. The hinge members 10 comprise laterally spaced parallel pairs of ears 54 and 56 projecting rearwardly from the rear endwalls 8 and 33 of the body and lid, respectively. These pairs of opposed ears lap one another partially as shown in FIGS. 2, 3 and 4 and are apertured to receive a hinge pin 58.

Next, with particular reference to FIGS. 2—7, inclusive, it will be seen that the body is provided with a plurality of integrally formed centering webs 60 that emerge from angularly spaced points along the side and end walls and extend inward more or less radially therefrom in the particular form illustrated. Each of these webs terminates along its free edge in a vertically disposed cylindrical enlargement 62 lying essentially tangent to a circle A (broken lines in FIG. 3) of the same radius as the lid 64 of a conventional film reel can 44. Thus, these centering webs cooperate with one another to hold the reel can in essentially centered position spaced away from the end walls and sidewalls where it, along with the reel 46 therein and the motion picture film (not shown), are less likely to become damaged by a blow on the side or end of the shipping case.

The distance separating the raised members 38 and 42 projecting above the bottom 40 and the underside of the top 30 is selected to permit the reel can 44 fit reasonably snugly therebetween so as to not rattle.

Under most circumstances, a can 44 is supplied to the user to protect the film and reel 46 outside the shipping case as well as provide additional protection therefor during shipment. Thus, provision is made in the shipping case for accepting the can 44 as above noted. Under other circumstances, however, it becomes necessary to ship or store the reel in the shipping case without a can being used. Since many of the reel cans are now being moulded from plastic rather than stamped from sheet metal, the elimination of the can with its relatively thick moulded walls leaves considerable extra space for the reel to shift around in, both vertically and sideways. Accordingly, removable spacers 70 are used in cooperation with the centering webs 60 to hold the film reel 46 snugly in place by itself.

Spacers 70 include a cylindrical body 72 sized to take up the space left in the shipping case following removal of the reel can, i.e., approximately twice the thickness of the can wall (compare FIGS. 5 and 6). This cylindrical body 72 has an axial opening 74 therethrough sized to accept the cylindrical enlargement 62 on the free edge thereof with a reasonably tight friction fit. A radial slot 76 extends from this axial opening through the body onto the exterior thereof sized to receive the web itself. Thus, with three or more such spacers 70 mounted on all or a selected few of the centering webs 60 as shown in FIGS. 2 and 6, it becomes possible to eliminate any sidewise motion of the reel relative to the body of the shipping case. Note also, it is held away from the side and end walls as was the situation with the can 44.

There remains, however, the problem of taking up the vertical space left following removal of the can 66, namely, that formerly occupied by the top and bottom thereof and any projections found on these surfaces. This is accomplished by providing spacer 70 with an overhanging ear 78 on the upper extremity of the body that projects out over the upper flange 50 of the reel 46 as shown most clearly in FIG. 6. This ear, of course, holds the reel down snug against the feet 42 on the bottom of the body. As shown in FIG. 7, the spacers are freely slidable up and down the web although they grip the cylindrical enlargement thereof sufficiently tight to stay in adjusted position; therefore, the underside of ear 78 can be spaced above the bottom of the body any distance less than the combined height of foot 42 and thickness of the reel and still slide down tightly atop the latter.

Referring once again, briefly, to FIGS. 2, 3 and 4, it will be noted that in addition to the reinforcing webs 60, the body is provided with two pairs of similarly designed reinforcing webs 82 that extend inwardly from the rear end wall 8 of the body opposite the ears 54 carried on the outside thereof. These reinforcing webs strengthen the body at its points of greatest stress, namely, adjacent the hinges 10 and they also provide means for storing the spacers 70 when they are not needed due to the presence of the reel can 66. Of course, the centering webs also reinforce the body, especially those located at the angular bends in the truncated corners.

Finally, reference will be made to FIGS. 8—11, inclusive, for a detailed description of the latch member 28. As previously mentioned, this latch element takes the shape of a foreshortened clothespinlike member having a U-shaped configuration defining a pair of springable legs 26 connected across the body portion 84 having earlike appendages 86 projecting from opposite ends thereof to form stops. The bottom of the body portion 84 along with its ears 86 are essentially planar and they fit flush with the bottom surface of the body tab 22 (FIG. 10) within a shallow recess 88 provided therefor that is wider than the body tab aperture 24 by the amount necessary to accommodate said ears. These ears, of course, keep the latch element from moving up through aperture 24 in the body tab.

The outside surfaces of the legs have a downwardly facing shoulder 90 located intermediate the ends thereof and positioned to latch atop the lid tab 20 (FIG. 10) when the latter lies high up against the body tab 22 as the legs 26 spring apart into their normal extended position. To release the latch, the upwardly and inwardly inclined faces 92 of the legs are pinched between the thumb and forefinger thus exerting a pressure thereon in the direction of the arrows in FIG. 10 until they occupy the broken line position shown therein where the shoulders have moved into the lid tab aperture 20; whereupon, the latch member is pushed down as shown in FIG. 11 enabling the lid to be raised free of the body.

During the latching operation, the shoulders 90 rest against the top surface of the body tab 22 as shown in FIG. 2. The width of body tab aperture 24 is such that it keeps the legs 26 of the latch element from springing apart too far to allow the tapered ends 94 of the legs from entering the lid tab aperture 20. Thus, as seen in FIG. 8, the legs enter the lid tab aperture 20 and the sides of the latter opening act against the inclined surfaces 92 of these legs to cam them toward one another in opposition to their normal spring bias thus permitting the tabs to engage one another as shown in FIG. 9. The latching operation is completed by pressing on the bottom of the latch as indicated by the arrow in FIG. 9 until the head and earlike appendages thereof move up into the recess and the shoulders lock atop the lid tab as in FIG. 10.

We claim:

1. A container designed to accommodate two different sizes of cylindrically shaped articles which comprises: an open-topped body having a bottom bordered by upstanding wall members cooperating therewith to define a receptacle sized to receive the larger of the two articles; at least three integrally formed upstanding webs extending inwardly from the wall

members, said webs having the free inner ends thereof positioned to abut the cylindrical surface of said larger article at circumferentially spaced points thereon adapted to prevent relative sidewise movement; at least three spacer elements having vertical slits therein adapted to receive the free inner ends of the webs, said spacers cooperating with said webs when in place on the free ends thereof to abut the cylindrical surface of the smaller of the two articles and prevent relative sidewise movement thereof; and, an open-bottomed lid having a top bordered by a down-turned skirt shaped and sized to telescope down over the upstanding wall members so as to provide a cover for the body.

2. The container as set forth in claim 1 which: the bottom and top are spaced-apart a distance selected to engage and prevent relative vertical movement of said larger article when the lid is in place atop the body.

3. The container as set forth in claim 1 in which: a second set of at least three integrally formed webs are provided in the body positioned and adapted to accept the spacer elements and store same out of the way of the larger cylindrical article when the latter is held in place by the first-mentioned set of webs.

4. The container as set forth in claim 1 in which: the minimum interior dimension separating opposed wall members is substantially greater than the diameter of the larger cylindrical article; and, in which the webs cooperate to hold said larger article in fixed-spaced relation to said wall members.

5. The container as set forth in claim 1 in which: the webs terminate at their face inner ends in vertically disposed enlarged portions of substantially uniform cross section; and, in which the spacer elements have a vertically disposed opening therethrough communicating the slit and shaped to accept the enlarged portion of the web.

6. The container as set forth in claim 2 in which: at least two of the spacer elements include integrally formed ears projecting horizontally therefrom adjacent one end and substantially opposite the slit therein, said ears being adapted to extend out over the top of the smaller of the two cylindrical articles and hold same down against the bottom when held in place between said spacers.

7. The container as set forth in claim 1 including a horizontally disposed tab having an aperture therethrough projecting substantially horizontally from the upstanding wall members of the open-topped body and said skirt including an integrally formed tab projecting substantially horizontally therefrom in face-to-face relation to the body tab, and said tab having an opening therein positioned to register with the opening in said body tab and, latch means releasably locking the tabs together in face-to-face relation when the lid is positioned atop the body; said latch means including a head portion located on the exposed face of one of said tabs having a dimension greater than the opening therein so as to not pass therethrough and a bifurcated portion projecting through the aligned openings onto the exposed face of the other of said tabs, said bifurcated portion including at least one springable leg movable from a normal extended position in spaced relation to the other leg thereof and a retracted position wherein the free ends of said legs have been squeezed toward one another, said springable leg having a shoulder formed on the outside surface thereof positioned and adapted to hook over the exposed face of the other of said tabs when in extended position and release said other tab when said leg is retracted.

8. The container as set forth in claim 7 in which: each of the springable legs includes an inclined cam surface on the outside thereof extending between the shoulder and the free end, said cam surface being adapted to more said springable legs from extended into retracted position as the free ends thereof move into and through the opening in the other of said tabs.

9. The container as set forth in claim 7 in which: both legs of the bifurcated portion are springable and each is provided with a shoulder adapted to hook over the exposed face of said other tab.

10. The container as set forth in claim 9 in which: each of the springable legs includes an inclined cam surface on the outside thereof extending between the shoulders and the free end, said cam surface being adapted to move said springable legs from extended into retracted position as the free ends thereof move into and through the opening in the other of said tabs.