United States Patent [19]

Crane

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[45] **Aug. 7, 1973**

[54] **HANDLE FOR PRODUCE CONTAINER**

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[73] Assignee: **Allied Plastics Company,** Sherman Oaks, Calif.

[22] Filed: **Jan. 14, 1971**

[21] Appl. No.: **106,434**

[52] **U.S. Cl.**..... **229/52 AW,** 220/97 B, 229/DIG. 11

[51] **Int. Cl.**..... **B65d 5/46**

[58] **Field of Search**..... 229/52 AM, 52 AW, 229/DIG. 11; 220/97 B

[56] **References Cited**

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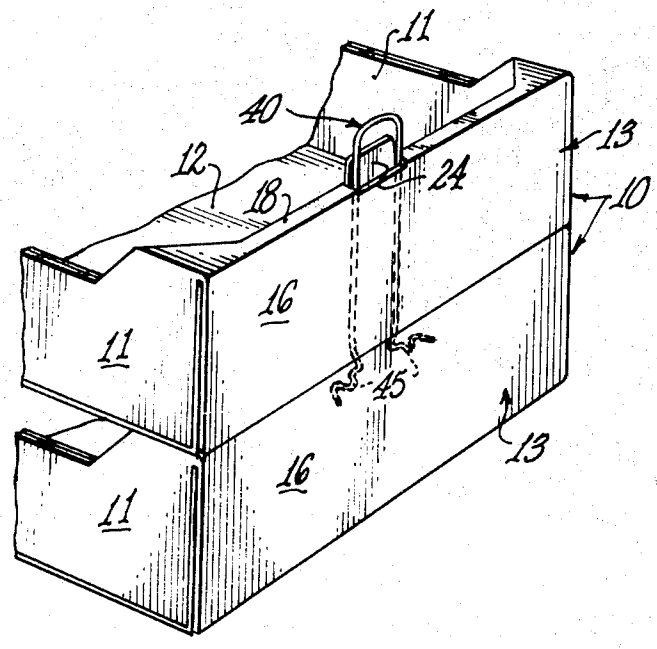
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Primary Examiner—Richard A. Schacher
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[57] **ABSTRACT**

A carrier handle for the container of the type shown in U. S. Pat. Re. No. 26,386, and which comprise opposite end walls, each of which has two spaced panels connected by a narrow top wall, a centrally located aperture in each top wall, and a centrally located aperture in the bottom, in vertical alignment with the aperture in the top wall. The carrier comprises a resilient wire bent into hair-pin form, forming legs terminating in extremities bent laterally away from one another through substantially a right angle to form oppositely extending feet. The legs are bent together with the grip of the hand to withdraw the feet sufficiently to enter the aperture in the top of an end wall, and then released, so that the feet project into positions underlying portions of the top wall at opposite ends of the entrance aperture. The extremities of the wire portions forming the feet are bent at right angles to the plane defined by the two legs of the wire carrier, and are of a length to gouge into the confronting end panel. The feet from which these extremities, barbs, or prongs project are backed up by the opposite end panel. The carrier is thus securely engaged with the end wall structure, will stay in that position while coupling to a second container, and can be used to carry the container, either with or without a second container stacked thereon.

3 Claims, 11 Drawing Figures



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FIG. 1.

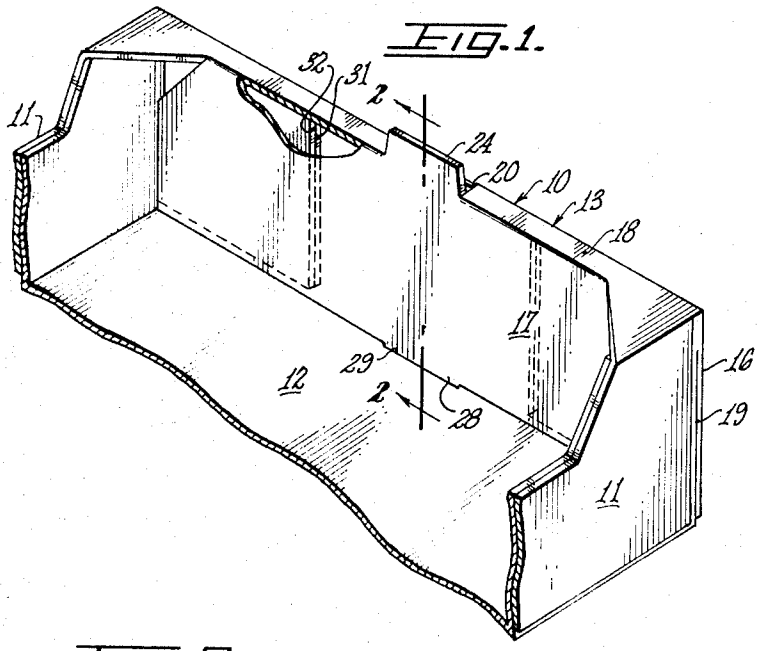


FIG. 2.

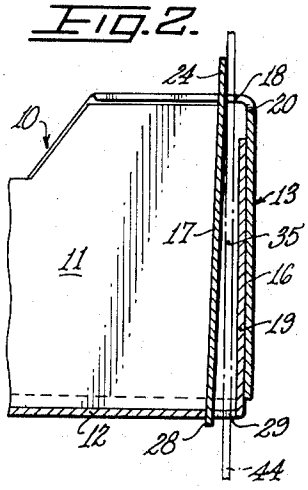


FIG. 3.

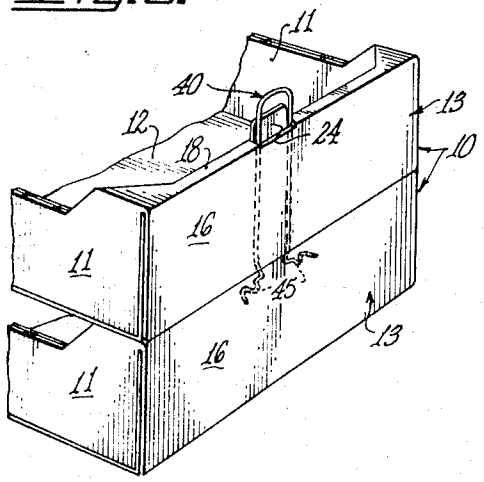


FIG. 4.

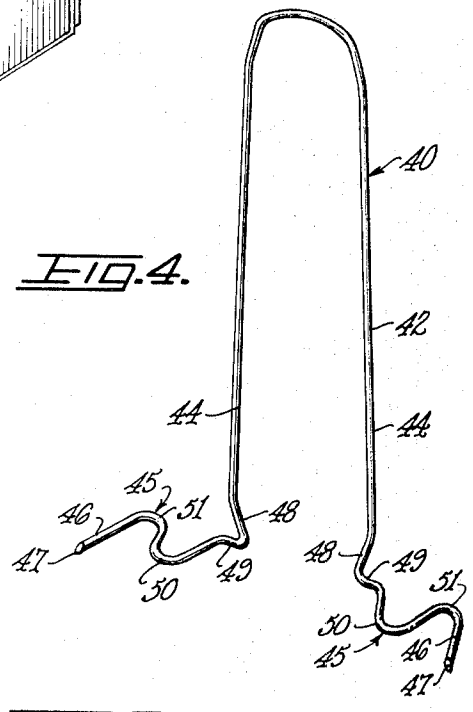


FIG. 5.

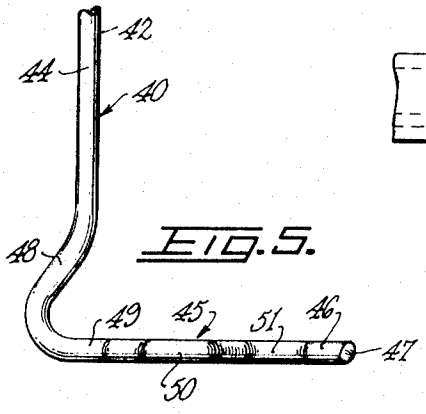
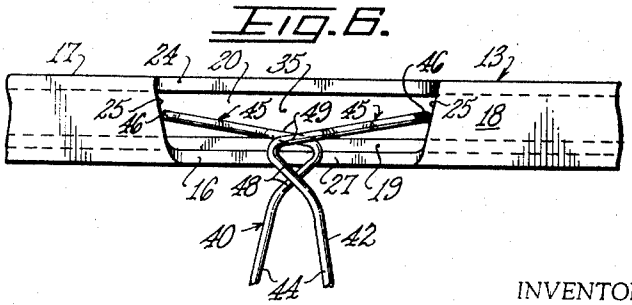


FIG. 6.



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FIG. 7.

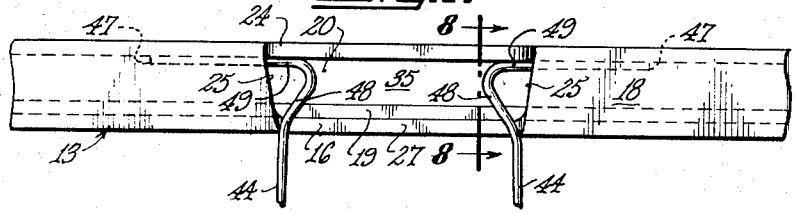


FIG. 9.

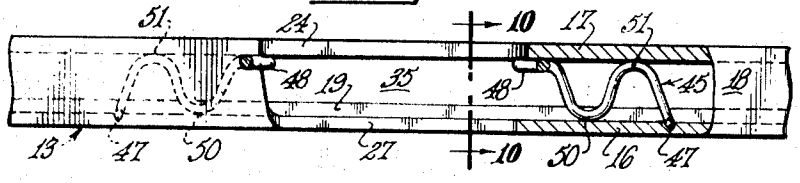


FIG. 8.

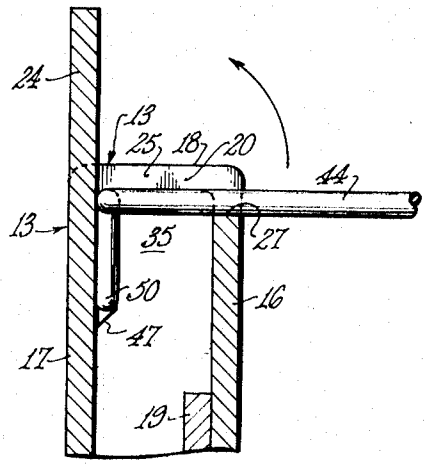


FIG. 10.

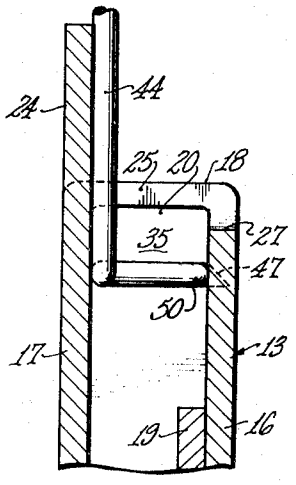
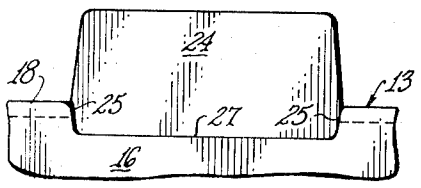


FIG. 11.



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HANDLE FOR PRODUCE CONTAINER

FIELD OF THE INVENTION

This invention relates generally to couplers for interlocking and coupling one container on another for stacking as well as transportation.

The containers in contemplations may be of a type generally shown in my prior U.S. Pat. Nos. 2,971,232 and 2,987,198, and a specific example of such a container is fully disclosed in my prior U.S. Pat. Re. No. 26,386.

BACKGROUND OF THE INVENTION

My U.S. Pat. Nos. 2,971,232 and 2,987,198 disclose a wire carrier handle, or "coupler," and shows how a wire "coupler" may be made to reach vertically downward into and through vertically aligned upper and lower slots in opposite end wall structures of corrugated paperboard produce containers, and to project under the bottom wall of the container for support of the latter. Each end wall of such a container comprises a pair of spaced plies connected by a narrow top wall at the top; and a third ply between these first two plies, and fixed to the interior surface of the outermost thereof. This third ply is turned at right angles to become the container bottom. The slots referred to hereinabove comprise an upper slot formed centrally in the narrow wall at the top, and an additional or lower slot, vertically aligned with the upper slot, formed in the end extremity of the bottom wall, in the bottom of what is essentially the end wall structure of the container. The couplers thus reach downward through the upper and lower apertures, and have feet which turn outward under the bottom wall, at the end extremity thereof, for support of the container and contents. The handles project upwardly from the upper slots in the ends of the bottom container, and an additional container may then be stacked on the first by simply lowering it onto the first, with the handles or couplers guided so as to penetrate the lower and then the upper end wall slots in the second container. The handles are long enough to reach above the second container, and the pair of containers can be carried by these handles, which thus directly support the bottom of the lower container, and laterally position the second container, with the weight of the second container borne by the first, through the vertical extent of the end walls of the latter. When the containers are fully loaded, as with boxes and berries, these end walls of the bottom container, and the side walls as well, may verge on buckling vertically.

A purpose of the invention is to provide an improved coupler of this general class, easily operable, simple, and one which obtains an especially sure grip or bite on the container to which it is attaches, particularly one which attached to the upper part of the lower container of a pair which are to be stacked.

BRIEF SUMMARY OF THE INVENTION

The invention provides a handle or coupler made up of a strong resilient wire, bent "hair-pin fashion" to provide two legs, whose lower or free ends are bent oppositely outwards from one another to form two feet. The outwardly bent, foot portions of the legs are so formed that the two extremities of the wires terminate at the outward extremities or toes of these feet in prongs which project laterally from the plane of the handle wires. To install the handle, the legs are squeezed together until the feet will enter the notch in the top of the end wall structure of the container, the handles being held so that the plane of its wires is near to a right angle with the end wall of the container. The feet having entered the notch, the legs are allowed to spring apart, so that the feet project in opposite directions beyond opposite ends of the notch. The handle is then moved into a vertical plane, i.e., the plane of the end wall, and the feet then turn under portions of the narrow top of the end wall structure, beyond opposite ends of the notch, while the prongs are turned into a gouging engagement with the inside surface of the outer side panel of the end wall. The handles are then both properly positioned, and held in proper position with adequate steadiness.

DESCRIPTION OF THE DRAWINGS

FIG. **1** is a perspective view of an end portion of a container of the type for which the handle of the present invention is intended;

FIG. **2** is a section taken on line **2—2** of FIG. **1**;

FIG. **3** is a perspective view of two containers coupled by a handle in accordance with the invention;

FIG. **4** is a perspective view of the handle of the invention;

FIG. **5** is an elevational view of a portion of one leg of the associated foot of the handle of FIG. **4**, looking in the direction of the arrow **5** of FIG. **4**;

FIG. **6** is a top plan view of an end portion of the container with the carrier held in position to enter the latter;

FIG. **7** is a view similar to FIG. **6** but showing a subsequent portion;

FIG. **8** is a section on line **8—8** of FIG. **7**;

FIG. **9** is a portion similar to FIGS. **6** and **7** but showing the similar portion of the interengagement of the handle with the container;

FIG. **10** is a section taken on line **10—10** of FIG. **9**; and

FIG. **11** is a view showing to larger scale a fragmentary portion of the end wall stretcher of the container, looking in the direction of the arrow **11** in FIG. **3**.

DESCRIPTION OF AN ILLUSTRATIVE EMBODIMENT OF THE INVENTION

The drawings show the parts pertinent to the present invention of a container of the kind shown in my Reissue U.S. Pat. No. 26,386. The walls of this container are to be understood as preferably composed of known reinforced corrugated paperboard stock, or equivalent. This container **10** has two-ply side walls **11**, a single-ply bottom wall **12**, and multiple-ply end wall structures **13**. In the container here illustrated, the end wall structure includes two vertical outside and inside panels **16** and **17**, spaced from and integrally connected to one another by a narrow top wall **18**. At the end of the bottom wall is an integral, turned-up end wall panel **19** which lies adjacent the inner surface of and is adhesively joined to the outside panel **16** of the end wall structure. The upper edge of the panel **19** terminates at a spacing distance below the top panel **18** for a reason that will become evident.

A slot **20** is formed at the center of the narrow top end panel **18**. This slot is made while the paperboard is still flat in "blank" form by a three-sided, generally U-shaped cut, in a manner so as, when the paperboard blank is erected, to produce a tab **24** projecting up

from the center of the panel **17**, leaving the slot **20** cut through the top panel **18** on converging diagonal cuts producing diagonal slot ends **25**. These latter are joined by a cut forming an edge **27** with angular or rounded ends dipping somewhat below the upper edge of the outer end panel **16**. Formed in bottom wall **12**, in vertical alignment with slot **20**, is a bottom slot **29**.

The outside and inside plies of the side walls have flaps **31** and **32**, respectively, at the ends thereof which are turned inwardly, and incorporated in the end wall structure between the panels **16** and **19**. These flaps, however, terminate short of the slots **20** and **29**. All this structure is shown and described in complete detail in the aforementioned U.S. Pat. No. Re. 26,386.

Thus, with this construction there is a vertical flat, space or shaft **35** between the end panel **16** and the end panels **16** and **19**, open at the top via slot **20**, and at the bottom via slot **29**.

Referring now to FIG. **4**, the handle is designated generally by the numeral **40**, and comprises generally a resilient wire **42**, preferably galvanized iron, tempered somewhat hard, preferably to 95,000 psi, bent into a U or generally hair-pin shape, and forming two legs **44**. The lower end portions or extremities of these legs are bent laterally outwardly, or away from one another, substantially in the common plane of the legs, and substantially through a right angle, so as to provide out-turned feet generally indicated at **45**. The wire portions forming these feet are contained substantially within or near a plane at right angles to the common plane of the legs and in such a manner as to afford the feet with width dimensions comparable to that of the flat space **35** within the end wall structures of the containers, and with length dimensions preferably in the proportions as shown. These feet may be shaped in various ways, one specific and presently preferred form of which is shown in the present drawings. A preferred feature of the invention is that the portions of the wire forming each foot occupy a single plane (thus avoiding complications in manufacture), and a very important feature of the invention is that the extremity of the wire forming the outer extremity or toe portion of the foot **45** includes a prong **46** extending laterally from the foot. The foot has a portion which is of a lateral width such as to just fit nicely (when positioned in a horizontal plane) in the interior space **35** between the panel **16** and the panel **17** (FIG. **9**). The prongs **46**, however, project laterally from the foot beyond this limit, and are cut diagonally, as shown, to provide points **47** which can gouge into the paperboard panels.

It may be noted (FIGS. **3** and **10**) that the panel **19** terminates below the region occupied by the feet **45**.

In the present illustrative embodiment, each leg **44** is bent angularly inwardly at its lower end, in the common plane of the two legs, at an angle of approximately 30°, so as to form an angular segment **48**, and is then bent outwardly, in said plane, to form a short horizontal segment **49** ending at a point substantially aligned with the corresponding leg. This segment **49** is the beginning part of the foot **45**, and in the position of FIG. **9**, lies against the panel **17**. It may be noted at this time that the various bends in the wire are made with a suitable radius according to good wire forming practice. The segment **49** merges with the first of a pair of reverse loops **50** and **51** whose crests or peaks are tangent to parallel lines spaced by the distance across the space **35** between the walls **16** and **17**, as clearly seen in FIG. **9**. The second or reversed loop **51** merges into the aforementioned prong **46**. The two loops **50** and **51** might be well described as being in the preferred form of one wave length of a sinusoidal curve.

FIG. **4** shows the handle in its normal form, and other figures show it resiliently deformed, within its elastic limit, to engage and support the container. Reference is directed to FIG. **6**, wherein the two legs of the handle have been squeezed together until the angular formations formed by the segments **48** and **49** cross one another, and with the plane of the legs **44** substantially at right angle to the end walls of the container. The handle is positioned with the barbs or prongs **46** down. The feet **45** can then be inserted into the aperture **20** (see FIG. b, **7**, and **8**). Thus, in FIG. **6**, with the legs **44** squeezed together, the feet **45** are in position to be inserted into the aperture **20** between its end edges **25**. In FIG. **3**, **7**, and **8**, the portions **49** of the legs have been allowed to spread apart, or have been spread apart, until the angular portions **48** of the legs cross the slot edges **25**, near the edge **27** of the panel **16**, and the portions **49** have been worked over toward or against the inside surface of panel **17**. The handle is then rocked toward a vertical position (see the arrow *a* in FIG. **8**) until it reaches the position of FIGS. **9** and **10**. In the course of this action, the portions **48** of the legs slide along the diagonal slot edges **25**, thereby being supported against downward displacement; and during this action the legs can be spread slightly further apart, as to the position of FIG. **9**. If the handle is not initially entirely to the position of FIG. **7** before being swung upwards, it will still wind up in the position of FIG. **9**, if the legs are spread apart fully as they are swung upward. In this upward swinging action the prongs **46** turn toward and finally engage the inside surface of the panel **16**, which it penetrates; and with the point of penetration as a fulcrum, the legs swing, and lower somewhat, to finally reach the position shown best in FIG. **10**. The feet **45** will then be spaced somewhat below the wall **18**. If the legs have not been fully spread to the position of FIG. **9**, the prongs **46** will still engage the panel **16**, and thus achieve carrying securement to the container. The prongs **16** may finally tear or deform the panel **16** above the point of indentation, whereupon the foot **45** will merely elevate relative to the counter wall **18** until it engages the underside thereof, and then supports the container in that manner.

Once the carrier is in position (FIGS. **9** and **10**), a second container can be loaded onto the first, as seen in FIGS. **2** and **3**, by threading the wires of the handle already in position on the first container through the apertures **29** and **20** and the intervening space **35** of the second container so that the stacked containers can be carried by the portions of the handle projecting above the top container. The weight of the top container and contents thus is not imposed on the lower container through its side and end walls during carrying, one container above the other. Note may be taken of the fact that when one container is stacked on another, the tab **24** of the lower is receivable into the slot **29** in the upper.

A feature of the invention is that when the diagonally sharpened prongs have penetrated into the panel **16**, the handle will be supported in an upright position, for convenient stacking of a second container on the first, rather than tending to rock over.

It will, of course, be understood that the drawings and description are of one illustrative embodiment only, and that various changes may be made without departing from the invention or the scope of the appended claims.

I claim:

1. A handle for engagement between paperboard end panels of a container end structure spaced by a predetermined distance, said panels being joined by a top wall formed with an entrance aperture for parts of said handle, said handle made of a resilient single wire, formed in the middle with a bight to provide two legs in a common plane, the wire being formed at the ends of said legs into feet which are turned outwardly, away from one another, substantially at right angles to the legs, said feet being in a plane substantially perpendicular to said common plane, and having widths corresponding to said predetermined spacing distance, said feet terminating at the extremities thereof remote from said legs in toe portions in the form of sharpened prongs projecting laterally a short distance beyond corresponding side edges of both of said feet, so as to penetrate at least slightly into the opposed end panel.

2. The subject matter of claim 1, wherein the wire portions forming said feet are substantially sinuous in form in the planes of said feet, each terminating at the toe end of the foot in said laterally projecting prong.

3. The combination of a paperboard container structure and a bent, resilient, single wire carrier handle comprising:

a paperboard container end structure having vertical end panels spaced by a predetermined distance, and a top wall joining the upper ends of said panels, and formed with a centrally located substantially trapezoidal entrance aperture in said top wall bounded by diagonal, convergent end edges, and

a carrier handle comprising a resilient single wire formed in the middle with a bight to provide two legs in a common plane, the wire being formed at the ends of said legs into feet which are turned outwardly, away from one another, substantially at right angles to the legs, said feet being in a plane substantially perpendicular to said common plane, and having widths corresponding to said spacing distance between said vertical end panels, said feet terminating at the extremities thereof remote from said legs in toe portions in the form of sharpened prongs projecting laterally a slight distance beyond the side edges of said feet, so as to penetrate shortly into the opposed end panel, the legs of said handle having, within their common plane, and forming junctures with said feet, wire portions which are angularly convergent downwardly, toward one another, within their said common plane, to join said legs with said feet, said last-mentioned wire portions being engageable with and supported and guided by said diagonal, convergent end edges of said entrance aperture upon swinging of said legs from said horizontal toward a vertical position, until said legs reach the vertical position and said prongs have penetrated into the paperboard panel opposed thereto.

* * * * *