

May 30, 1944.

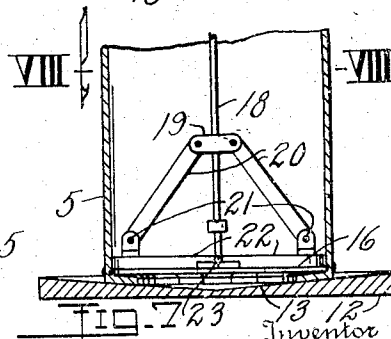
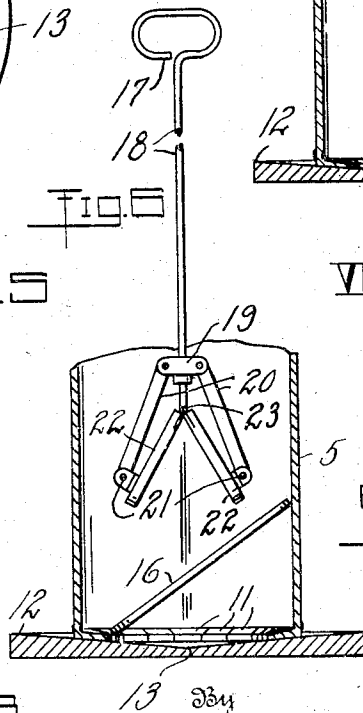
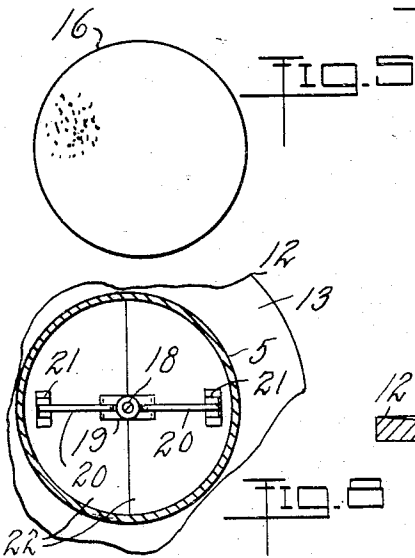
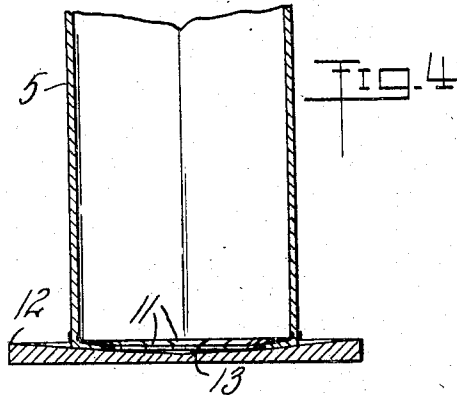
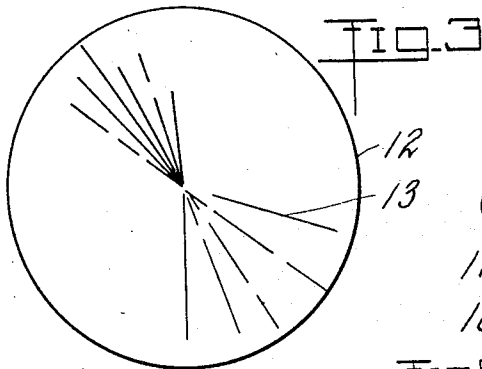
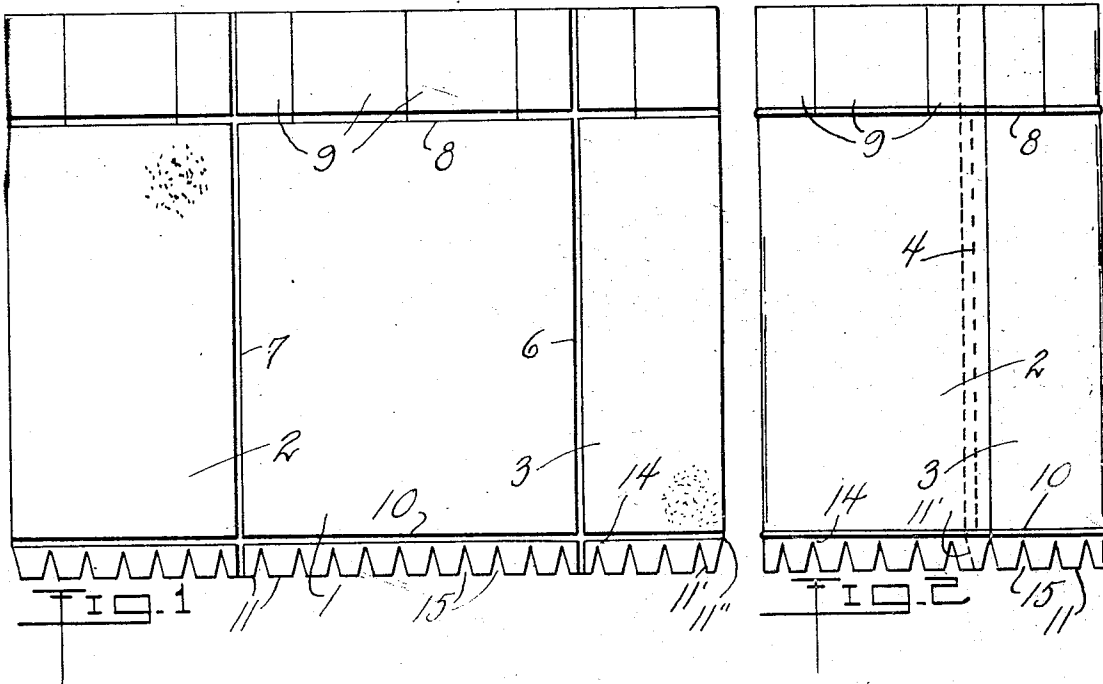
H. E. HINES

2,350,232

CARTON

Filed Feb. 14, 1942

2 Sheets-Sheet 1



Harry E. Hines

Geo. F. Hines
Attorney

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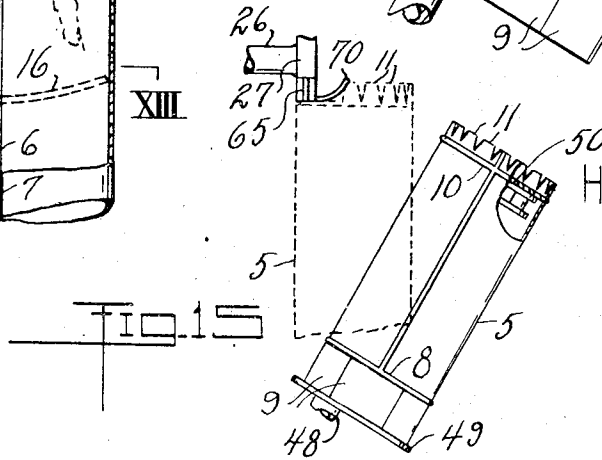
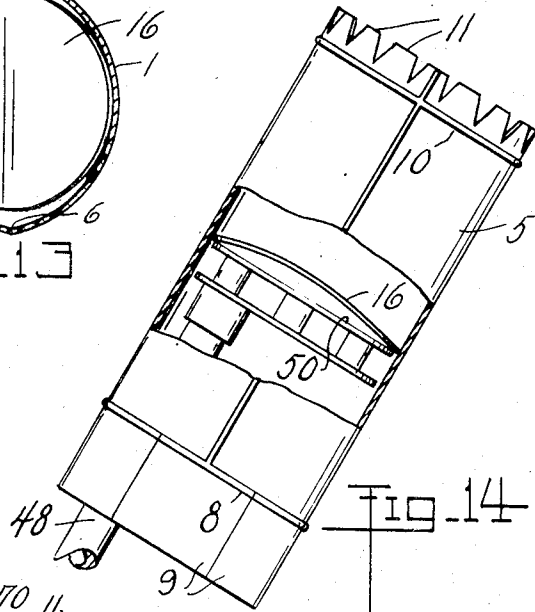
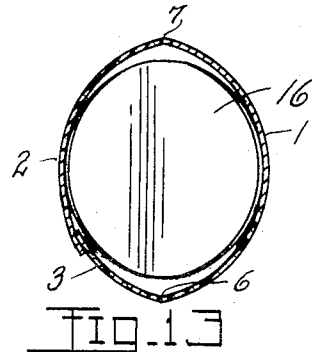
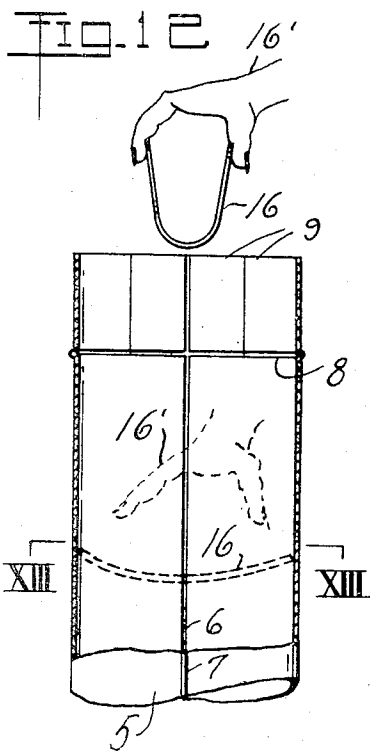
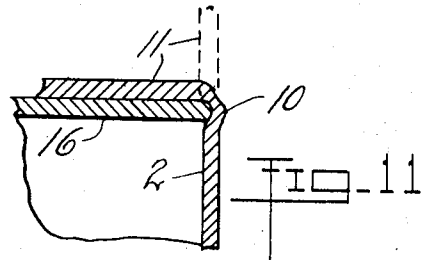
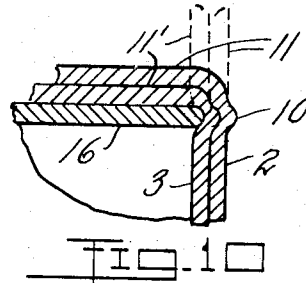
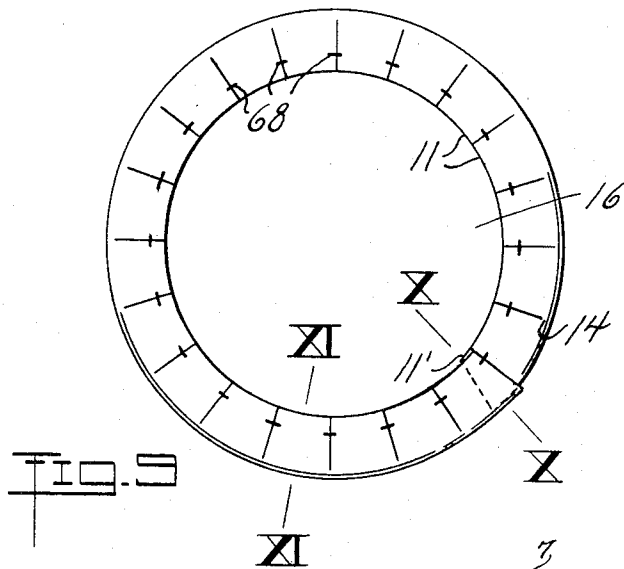
H. E. HINES

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CARTON

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2 Sheets-Sheet 2



Harry E. Hines
Inventor

Geo. E. Hines
Attorney

UNITED STATES PATENT OFFICE

2,350,232

CARTON

Harry E. Hines, Monroe, Mich., assignor to Consolidated Paper Company, Monroe, Mich., a corporation of Michigan

Application February 14, 1942, Serial No. 430,935

8 Claims. (Cl. 229—5.5)

This invention relates to setting up receptacles.

This invention has utility when incorporated in opening out flat or knock-down carton sections, setting a partition or end in the side walls or tubular portion terminal region thereof, and anchoring the partition or end in such set-up package section, thereby to form an open top receptacle ready for charging contents therein.

Referring to the drawings:

Fig. 1 is a view of the scored blank from the inner side thereof;

Fig. 2 is a showing of the scored blank of Fig. 1 as assembled into a flattened-out endless section;

Fig. 3 is a plan view of the base or platform against which the opened-out tube has its short flaps jammed to effect folding of such inward;

Fig. 4 is a fragmentary vertical section through the container as jammed against the base or platform;

Fig. 5 is a detail view of the end closure or partition to be seated in the tubular portion against the inwardly extending flaps of Fig. 4;

Fig. 6 is a view similar to Fig. 4 with the partition angularly in the tubular portion with the tool projected theretoward;

Fig. 7 is a view similar to Fig. 6 in which the tool has effected the thrusting of the partition into the seat or angle against the endless series of end flaps;

Fig. 8 is a section on the line VIII—VIII, Fig. 7, showing the spread-tool over the partition in the cylindrical tube container;

Fig. 9 is a view of a completed carton end;

Fig. 10 is a section on the line X—X, Fig. 9, at the seam;

Fig. 11 is a section on the line XI—XI, Fig. 9, away from the seam;

Fig. 12 shows flexing of the end closure disk to insert in the partially expanded side walls of the tube or cylinder for the drum;

Fig. 13 is a section on the line XIII—XIII, Fig. 12, showing the disk in descent;

Fig. 14 shows supplemental or alternative thrusting to locate the disk from that of Fig. 6; and

Fig. 15 shows the mounted drum on the support ready to be tilted to the stitcher or stapling machine head.

In the carrying out of the invention herein, sheet fiber board, box board, or paper board stock may provide a major side 1, a secondary side 2, and a still minor side 3 (Fig. 1), which is assembled by stitching 4 to provide drum or tube side

walls 5 (Figs. 2, 4) for a container. Scoring 6, 7, determine a fold region for the knock-down tubular blank to be in flat condition for stacking and shipping. A scoring 8 is at the base of major flaps 9 as an endless annular series for the end closure portion of the container, which closure is to be effective after the container is charged or filled. A scoring 10, remote from the scoring 8, is slightly spaced from endless annular series of minor flaps 11. The anchoring means or stitching or stapling 4 brings the terminus of the minor inner side 3 to overlap the terminus of the larger side 2. This preserves the symmetry for the flaps 11 and locates at the region of the stitching 4, but therebeyond, fractional flap 11' (Fig. 1) which has its tapered side 11'' extend from the tip of the flap 11' to the scoring 10. This means that this incline at the terminus of the section 3 is of greater extent than the sides of V-cuts 15 which separate the flaps 11 but which V-cuts do not extend clear to the scoring 10. Accordingly, there is at the assembly or stapling 4 a double thickness for at least a fraction of the tab or flap, but the symmetry of the tabs or flaps is continuous.

In the carrying out of the invention herein, this knockdown or flat tubular structure (Fig. 2) may be spread or opened out and the side walls 5 (Fig. 4) then thrust toward a base 12 having shallow inwardly tapered portion 13. It is to be noted that the stitching 4 is such as to locate the scoring 10 on the inner side of this structure as opened out. The scoring 10, with a clearance 14 as to the V-cuts 15 between the flaps 11, controls the flaps 11 against outward thrusting, so that in this jamming there is an inward drawing to have these flaps radiate inward on the base 12. The sides of the V-cuts 15 and the slant of the side 11'' are at an acute angle to the direction of the scoring 10, while the V-cuts 15 do not extend clear to the scoring 10 but are short therefrom. Partition 16 may then be dropped or thrust into this region between the side walls 5. The partially-opened-out tube may have the disk 16 bowed and snapped at least partway down the tube 5 to aid in bringing it to circular form. Completion of the thrusting may occur at the stitching machine (Fig. 15) or by a tool prior to placing the carton part on the machine (Figs. 4, 6).

For facility in the locating of this partition, a tool may be provided having a grip or handle 17 and a stem 18 (Fig. 6) with a loose guide 19 thereon having diametrical arms 20 to pivot connections 21 with semi-circular sections 22 having

an intermediate hinge 23. This tool as thrust down centrally between the side walls 5 against the partition 16 so flattens out this partition 16 that its rim portion registers with the scoring 10 adjacent the flaps 11. The groove or scoring is on the inner side, which countersink produces complementary rib in register therewith on the outer side.

Helpful in carrying out this invention is a machine having an overhanging arm 26, terminally of which is located a stitcher 27, for flat stock adapted to be cut into lengths and terminally bent over as a two-pointed tack in staple-like type of stitch. A column 48 has thereon a lower deck or holder 49 and an upper deck or holder table 50. The location of the table portion 49 is at such spacing from the table portion 50 that, as the tubular section 5 rests on the table 50 with the tube portion 5 downward therefrom, the flaps 9 as straight therefrom about this table 49 and the partition 16 is seated in the scoring groove 10 here or previously by the tool.

In placing this stock or work on the holder, the upper table 50 is pulled or rocked away from the stitcher 27. In this cleared position for placing the work on the tables, the tables may then be rocked back to the desired upright position to bring the table 50 at appropriate register position as to the stitcher working tool 27. The table and work are normally held in this registry position. As the stitching operation is completed and the tool 27 is withdrawn, the machine shifts the work for a step in progress or rotation to make the next stitch. The tables do not rotate but have their only position of change that of rocking. The work is given this step by step for the desired advance, whether the stapling be to bridge between the flaps 11, or medially of the flaps, or in both places.

As the operator notes the stitching has been completed for the circuit, the drive is released and the machine stopped so that the work may be pulled away from position beneath the stitcher. This stitch-anchored partition 16 at the end of the carton 5 is thus, as a unit, slipped off the inclined set of tables 49, 50, as tilted away from the stitcher 27. All is now in readiness for slipping a succeeding set-up of carton with the partition located therein. As such partition 16 is against the table portion 50 and the free ends of the flaps 9 about the table portion 49, the tables are rocked back to have the column 48 upright in position as to the stitcher 27. The operator may then trip or start the machine for a repetition of the cycle of operation.

In practice, it is convenient that there be a range of operation herein, as well as a range for taking care of different dimension containers. Such range as to length is effected by locating different spacing between the upper table portion 50 and the holder table portion 49. The matter of transverse dimension which could mean variation in the diameter is readily taken into account by the step-by-step feed or shifting as to the table 50. In practice, there may be purpose in locating staples 28 in the joints between the flaps 11 to bridge therebetween (Fig. 9) or even centrally of the flaps. This location is taken into account by varying the throw of the step-by-step feed.

With the carton in position as to its tubular portion about the table 50 and the end or partition 16 against the table 50, the flaps, whether or not previously jammed, are directed by guide 70 (Fig. 15) into proximity to this end 16 as the

respective flaps are fed into position as to the stitcher 27.

As shown in Fig. 9, the fractional tab 11' at its edge portion from the terminus of the side portion 3 is away from registering with a notch 15. This means that the clearance 14 as to at least one of the overlapping termini of the sides 2, 3, assembled by the stitching 4, has clearance continuity away from a notch 15. The notches 15 are sufficient to permit the tabs 11 to be swung toward each other into a common plane with the disk 16, with minimum of crowding action at the clearance 14 as away from the seam. This is a factor in promoting sealing efficiency, even for liquid asphalt as charged into the container or drum. The seam as herein disclosed does not aggravate or tend to promote leakage, due to the departure from full registry of the overlapping tabs. A further strengthening against leakage is involved when this overlapping out of registry locates the inner terminus away from such clearance 14 as to a notch 15.

This application is a continuation in part of my copending application for United States Letters Patent, Ser. No. 316,192, filed January 29, 1940, for Method and apparatus for forming cartons.

What is claimed and it is desired to secure by Letters Patent is:

1. For a carton, side wall structure of a strip having termini overlapping and anchored together adapted to be collapsed and having from one end an endless series of flaps, said structure being provided with scoring on the inner side spaced inward from the flaps, the flaps being symmetrical throughout from the outer terminus to the passing of the inner terminus thereunder, from which outer terminus the inner terminus has a fractional flap portion at the inner side of the overlapping and there anchored to the full flap of the outer terminus of the side wall structure in thereby completing an endless sealing seat in the scoring, and a partition in said seat and against the outer side of which the flaps are anchored.

2. A drum construction comprising a tubular body member of flexible sheet material formed with inner and outer overlapping end portions, a disc-like closure member, tabs extending from the body member adapted to be folded over and secured to the outer surface of the closure member, the tab on the end of the outer portion of the body member being adapted to overlap the tab on the inner portion, the body member being formed adjacent the bases of the tabs with a score line having a concave portion directed inwardly of the body member and a convex portion directed outwardly thereof, the convex score line portion of the inner body portion being fitted so as to extend at least partially into the concave score line portion of the outer body portion, the edge of the closure disc being adapted to fit into the concave part of the score line in the body member, the outer edge portion of the inner overlapping tab adjacent its base being disposed centrally of the tab on the outer portion, said outer edge extending thence downwardly at an inclination to the score line at an acute angle, whereby the edge portion from the base of the tab is disposed at an acute angle when the disc has been fitted into the end of the body member.

3. A drum construction comprising a tubular body member of flexible sheet material formed with inner and outer overlapping end portions, a disc-like closure member, tabs extending from

the body member adapted to be folded over and secured to the outer surface of the closure member, the tab on the end of the outer portion of the body member being adapted to overlap the tab on the inner portion, the body member being formed adjacent the bases of the tabs with a score line from inwardly of the body member forming an outward complementary portion, the complementary portion of the inner body portion being in register with the score line overlap portion of the outer body portion, the edge of the closure disc being adapted to fit into the score line in the body member, the outer edge portion of the inner overlapping tab adjacent its base being disposed centrally of the tab on the outer portion, said outer edge extending thence downwardly at an inclination to the score line at an acute angle, whereby the edge portion at the base of the tab is disposed from the edge of the disc at an acute angle when the disc has been fitted into the end of the body member.

4. A drum construction comprising a tubular body member of flexible sheet material formed with inner and outer overlapping end portions, a disc-like closure member, tabs extending from the body member adapted to be folded over and secured to the outer surface of the closure member, the tab on the end of the outer portion of the body member being adapted to overlap the tab on the inner portion, the body member being formed adjacent the bases of the tabs with a score line from inwardly of the body member forming an outward complementary portion, the complementary portion of the inner body portion being in register with the score line overlap portion of the outer body portion, the edge of the closure disc being adapted to fit into the score line in the body member, the outer edge portion of the inner overlapping tab adjacent its base being disposed centrally of the tab on the outer portion, said outer edge extending thence downwardly at an inclination to the score line at an acute angle, whereby the edge portion from the base of the tab is disposed at an acute angle when the disc has been fitted into the end of the body member.

5. A drum construction comprising a body member of flexible sheet material provided with a score line spaced from an edge with a lineal series of notches along said edge and extending for clearance away from the score line, said notches thereby providing therebetween a series of tabs, said member having inner and outer termini overlapping to form a tube or body for the drum, stitching uniting said overlapping and extending away from the series of tabs for interfitting the termini of the score line adjacent said stitching in forming a seam and bringing the tabs into an endless series, a disk-like closure entered into the tube to register with the score

line, and additional stitching anchoring the tabs against the outer face of the closure with at least one terminal edge of the body across the score line for the disk spaced from registry with a notch.

6. A drum construction comprising a body member of flexible sheet material provided with a score line spaced from an edge with a lineal series of notches along said edge and extending for clearance away from the score line, said notches thereby providing therebetween a series of tabs, said member having inner and outer termini overlapping to form a tube or body for the drum, stitching uniting said overlapping and extending away from the series of tabs for interfitting the termini of the score line adjacent said stitching in forming a seam and bringing the tabs into an endless series, a disk-like closure entered into the tube to register with the score line, and additional stitching anchoring the tabs against the outer face of the closure with the inner terminal edge of the body across the score line for the disk spaced from registry with a notch.

7. A drum construction comprising a tubular body member of flexible sheet material formed with inner and outer overlapping end portions, a disc-like closure member, tabs extending from the body member adapted to be folded over and secured to the outer surface of the closure member, the tab on the end of the outer portion of the body member being adapted to overlap the tab on the inner portion, the body member being formed adjacent the bases of the tabs with a score line on the inner side of the body member with the score line overlapping end portions in register to form an endless seat, the edge of the closure disc being adapted to fit into the endless seat of the score line in the body member, the outer edge portion of the inner overlapping tab adjacent its base being disposed centrally of the tab on the outer portion.

8. A drum construction comprising a tubular body member of flexible sheet material formed with inner and outer overlapping end portions, a disc-like closure member, tabs extending from the body member adapted to be folded over and secured to the outer surface of the closure member, the tab on the end of the outer portion of the body member being adapted to overlap the tab on the inner portion, the body member being formed adjacent the bases of the tabs with scoring on the inner side of the body member with the scoring overlapping end portions in register to form an endless scoring, the edge of the closure disc being adapted to register with the endless scoring in the body member, the outer edge portion of the inner overlapping tab adjacent its base being disposed centrally of the tab on the outer portion.

HARRY E. HINES.