

July 30, 1963

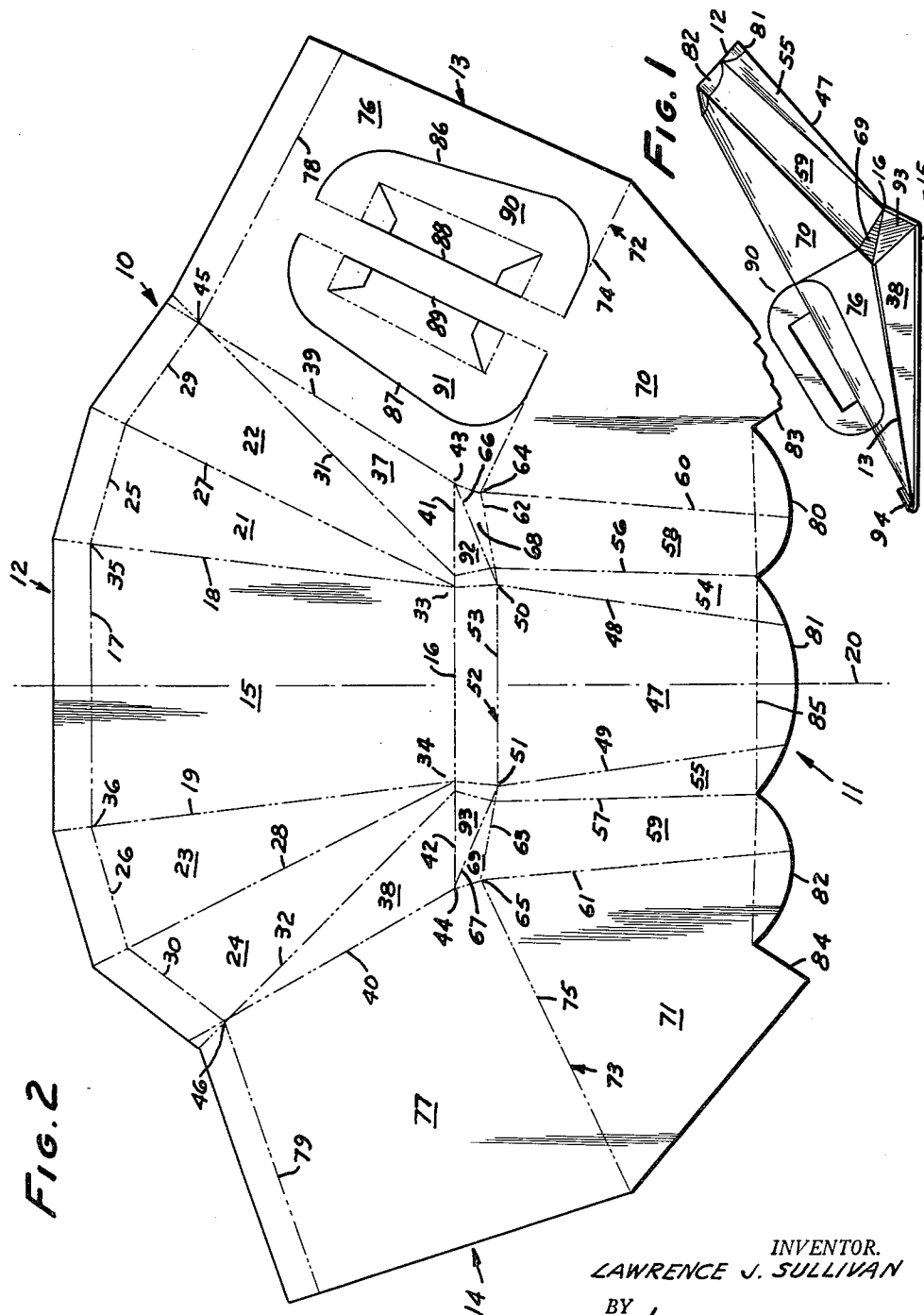
L. J. SULLIVAN

3,099,017

DISPOSABLE, COLLAPSIBLE URINAL

Filed May 31, 1962

4 Sheets-Sheet 1



INVENTOR.
LAWRENCE J. SULLIVAN

BY

Angus & Mow
ATTORNEYS.

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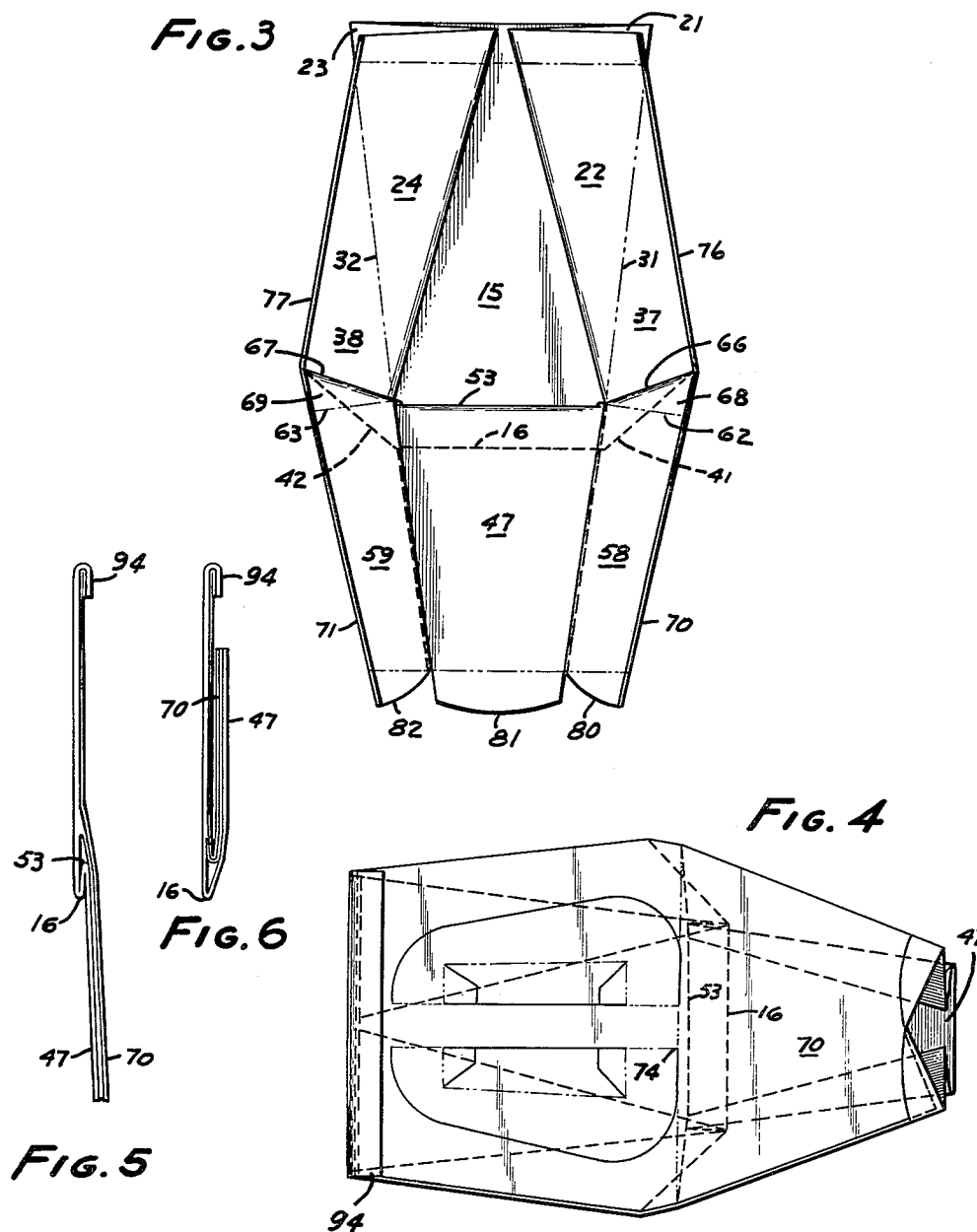
L. J. SULLIVAN

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DISPOSABLE, COLLAPSIBLE URINAL

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4 Sheets-Sheet 2



INVENTOR.
LAWRENCE J. SULLIVAN

BY
Angus & Morrow
ATTORNEYS.

July 30, 1963

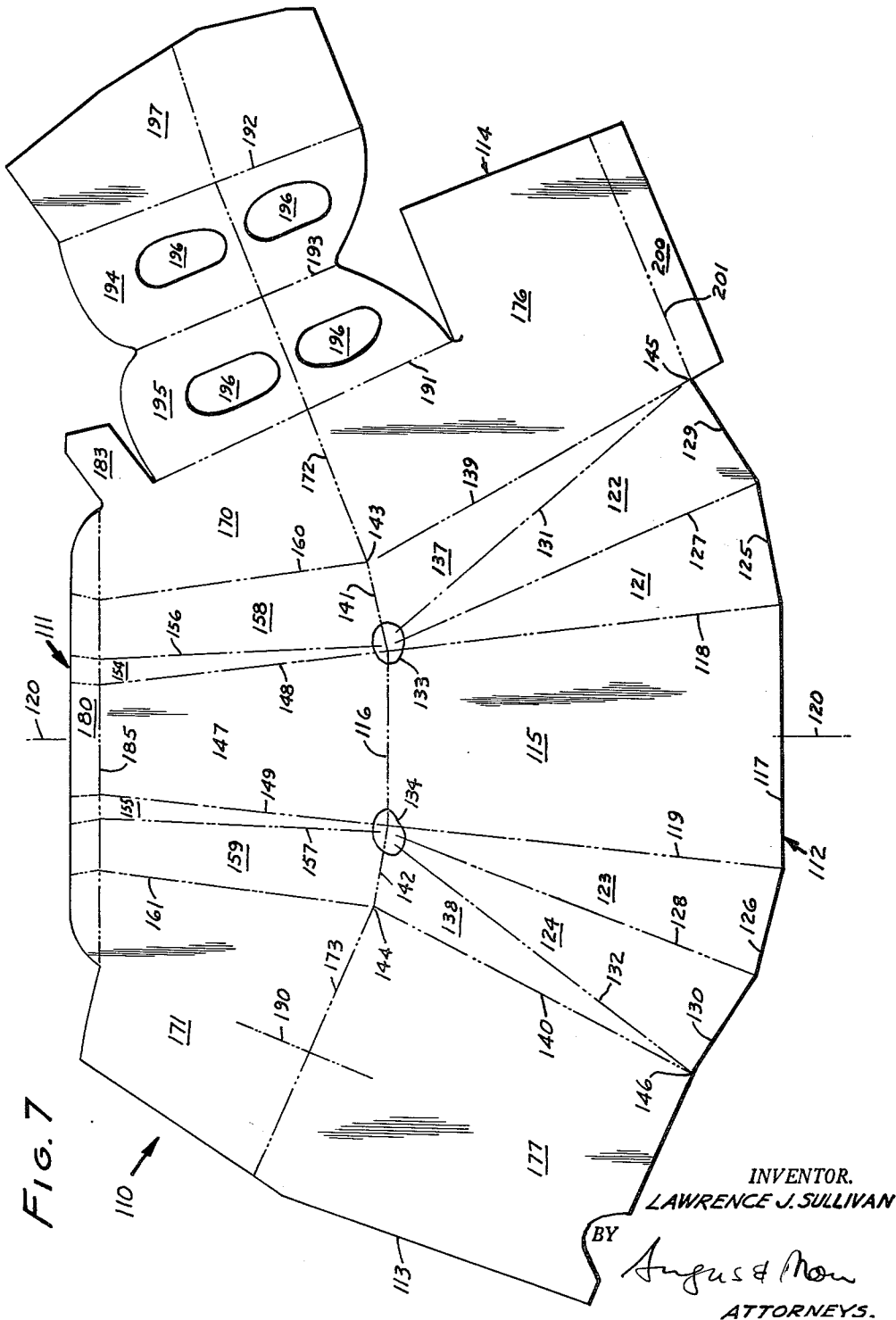
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DISPOSABLE, COLLAPSIBLE URINAL

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FIG. 9

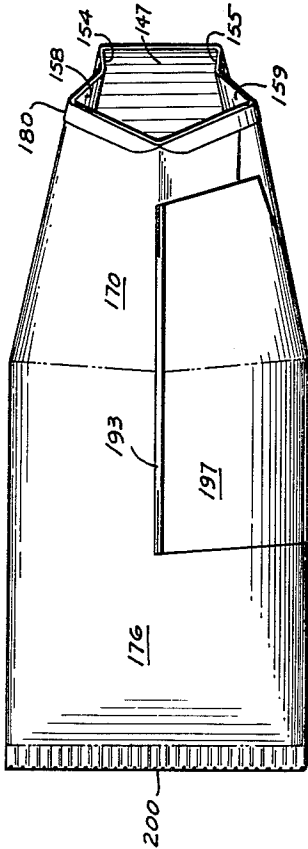
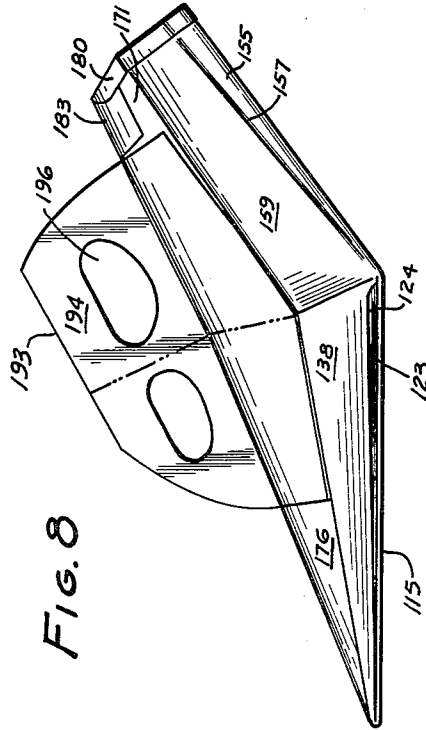


FIG. 8



INVENTOR.
LAWRENCE J. SULLIVAN

BY

Angus & Mow

ATTORNEYS.

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3,099,017

DISPOSABLE, COLLAPSIBLE URINAL

Lawrence J. Sullivan, Los Angeles, Calif.
(5260 Palm Drive, La Canada, Calif.)

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12 Claims. (Cl. 4-110)

This invention relates to a disposable, collapsible urinal.

This application is a continuation-in-part of applicant's co-pending application, Serial No. 109,126, filed May 10, 1961, entitled "Disposable, Collapsible Urinal."

There is need in hospital operations, particularly in evacuation operations and the like, for a urinal which can be stored in a small space, set up conveniently, and after usage be easily disposed of. In addition, such a disposable urinal should be lightweight, leakproof, and have enough rigidity to remain folded or set up as desired.

In addition, as the cost of hospital help has gone up, and its supply has gone down, the requirement has arisen for a low cost urinal which can be issued to an individual, which can be used for about a week with only rinsing between uses, and which is cheap enough to be thrown away. This saves the cost, nuisance, and noise of sterilizing urinals.

A urinal according to this invention meets the above requirements and overcomes the objectionable features of some of these urinals which have been known in the prior art. For example, many of the known devices require a separate bottom and sidewall piece which must be sealed together, often along curved edges. This gives rise to difficult sealing and leakage problems. It is an object of this invention to provide a urinal which can be folded up from a single flat piece of material which is preferably scored for convenience in folding, and which can be made out of a single piece that encompasses the top, sides, bottom and open neck, and which eliminates most of the difficult sealing problems, requiring only sealing of straight edges and flat surfaces.

A feature of the invention resides in scorings which permit the device to be folded up to its erected or collapsed configurations.

A preferred but optional feature of this invention resides in the provision of a folded handle structure which acts to hold the urinal in its erected configuration.

The above and other features of this invention will be fully understood from the following detailed description and the accompanying drawings in which:

FIG. 1 is a side elevation of a urinal according to the invention shown in its setup configuration;

FIG. 2 is a plan view of the blank from which the device of FIG. 1 is formed;

FIG. 3 is a top view showing the device in its partially folded up configuration;

FIG. 4 is a top view of the device in one of its collapsed configurations;

FIG. 5 is an edge view of FIG. 4;

FIG. 6 is an edge view of another collapsed configuration;

FIG. 7 is a plan view of a blank for forming the presently preferred embodiment of the invention;

FIG. 8 is a side view of the erected configuration of the blank of FIG. 7; and

FIG. 9 is a top view of FIG. 8.

In FIG. 2, there is shown a blank from which the device of FIG. 1 is formed up. This blank is a single sheet of foldable fluid-impermeable material, preferably fairly stiff stock. However, for devices intended to be flushed away after only a single use or two, the material may be somewhat more flexible, still being stiff enough that it will not readily collapse in use.

Waxed or plastic-coated paper stock of adequate weight, strength, and thickness is suitable for devices intended

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for reuse. For very lightweight urinals intended to be used only once or twice and then thrown away, fairly heavy grades of parchment are adequate.

For convenience in forming up the device, scores are provided in the surface of the blank and these are indicated by dashed lines. These scores direct the folds. The relative spatial locations of the edges formed by these folds uniquely determine the shape of the erected device. They are located so as to form a stable structure.

The blank includes a neck edge 11, a bottom edge 12, and two side edges 13, 14.

A bottom surface 15 is defined by a bottom front score 16, a closure score 17, and a pair of bottom side scores 18, 19. The bottom surface is generally trapezoidal, scores 16 and 17 being parallel, and scores 18 and 19 converging toward each other as they approach the bottom front score.

The device is symmetrical around a center line 20, so that the configurations recited for the surfaces on one side thereof will be the same as those on the other.

Contiguous to the bottom side scores are two pairs of body flute surfaces 21, 22, 23 and 24, body flute surfaces 21 and 23 being contiguous to and partially bounded by bottom side scores 18 and 19, respectively.

Body flute surfaces 21 and 23 are further bounded by closure scores 25, 26 and by body flute scores 27, 28, respectively. Body flute surfaces 22 and 24 are bounded by closure scores 29, 30 and by body side scores 31, 32, respectively, as well as by body flute scores 27 and 28, respectively. Body flute surfaces 21-24 are substantially isosceles triangles, and are nearly congruent.

Bottom side score 18, body flute score 27, and body side score 31 meet at a body flute base junction 33, and scores 19, 28 and 32 meet at a body flute base junction 34. These junctions are not precisely points, and are indicated by dotted lines as regions. However, scores 27 and 18 and scores 19 and 28 do meet at a single point within the regions. These regions do act as junctions, but each includes two points of intersections, to minimize the amount of folding taking place within a limited area. It is desirable, but not essential, to limit the number of folds adjacent to a single point. However, as to function of the surfaces which converge at these junctions, their result is still that the junctions function substantially as points in determining the shape and configuration of adjacent areas.

Closure scores 17 and 25 meet at a base junction 35 with bottom side score 18. Closure scores 17 and 26 meet at a base junction 36 with bottom side score 19.

Two side surfaces 37, 38 are contiguous to body flute surfaces 22 and 24. Surfaces 37 and 38 are bounded by body side scores 31, 32, body top scores 39, 40 and side transition scores 41, 42, respectively. The side transition scores are essentially continuations of the bottom front score and emanate from the respective body flute base junctions 33 and 34 to front junctions 43, 44, respectively. The body top scores interconnect respective front junctions with side junctions 45, 46 at which meet closure score 29, body side score 31 and body top score 39 at junction 45, and closure score 30, body side score 32 and body top score 40 at junction 46.

A neck bottom surface 47 is contiguous to bottom surface 15 and is bounded at one side by bottom front score 16. A pair of neck side scores 48, 49 extend forwardly away from the bottom surface and intersect the neck edge. The neck side scores include neck medial junctions 50, 51 at which the neck scores deviate a bit to form an obtuse angle to aid in forming the device. The neck side scores are not, strictly speaking, straight lines because of this deviation, but the segments are. Between medial junctions 50, 51, there extends a theoretical neck medial line 52 which may be scored to form a

neck medial score 53 if desired. However, this neck medial score is optional as will later be described.

Two first neck flute surfaces 54, 55 are formed contiguous to the neck bottom surface and are bounded partly by neck side scores 48 and 49, respectively. They are also bounded by neck flute scores 56, 57 and by the neck edge. The flute scores intersect at the region defined as body flute base junctions 33 and 34, although they are somewhat spaced apart from the neck side scores to avoid excessive folding stress concentrations at a single point as hereinabove described.

Second neck flute surfaces 58, 59 are formed contiguous to respective first neck flute surfaces and are bounded by one side by neck flute scores 56 and 57. They are further bounded by neck top scores 60, 61 and by side medial scores 62, 63, respectively, and also by the neck edge so that they are essentially quadrilateral surfaces. The neck top sources are spaced from and do not intersect with their respective neck flute scores, and make intersection with respective front transition junctions 64, 65, which front transition junctions are spaced apart on the body top scores from the respective front junctions.

A pair of neck body transition scores 66, 67 interconnect front junction 43 and neck medial junction 50 and front junction 44 and neck medial junction 51, respectively. Neck transition surface 68 is bounded by neck body transition score 66, side medial score 62, and that portion of body top score 39 which lies between front junction 43 and front transition junction 64. Neck transition surface 69 is bounded by neck body transition score 67, front transition score 63, and that portion of the body top score 40 which lies between front junction 44 and front transition junction 65.

Bottom transition surfaces 92, 93 are bounded by neck body transition scores 66, 67, side transition scores 41, 42, and those portions of neck side scores 48 and 49 which lie between the neck medial junctions and the body flute base junctions, all respectively.

Neck top surfaces 70, 71 lie contiguous to second neck flute surfaces 58, 59, respectively. They are bounded at one side by neck top scores 60 and 61, respectively, at their other side by side edges 13 and 14, respectively, and by the neck edge. Theoretical top medial lines 72, 73 extend from front transition junction 64, 65, respectively, toward the side edge. Their precise location will be discussed more fully below. A top medial score 74, 75 may be impressed along these lines but is optional as will also be further discussed below. This medial line defines the lower extent of the neck top surface.

Body top surfaces 76, 77 are contiguous to side surfaces 37 and 38, respectively, and are bounded by them, by closure scores 78, 79, respectively, by the medial lines 72 and 73, respectively, and by the side edges.

The upper edge, preferably but not necessarily, has three rounding tabs 80, 81, 82. Tab 81 lies between neck flute scores 56 and 57, while rounding tabs 81 and 82 lie on opposite sides thereof. Locking tabs 83, 84 lie on opposite sides of the three rounding tabs. All of the tabs could be deleted and the device could be cut off to form an edge at tab score 85 if preferred, but as can be seen from FIG. 1, the rounding tabs fold down to provide a nice rounded edge which will not cut, and at least one of the locking tabs can be inserted under at least one of the rounding tabs to lock the neck so that this is a preferred but optional feature of the invention.

Closure scores 17, 25, 26, 29, 30, 78 and 79 generally parallel their respective portions of the bottom edge of the blank so that they can be folded over to form closure tabs 94 to close the bottom in a manner yet to be described.

In the event that a self-handle is desired, a construction can be formed such as that shown in FIG. 1, where slits 86, 87 are formed to define the outer portion of a handle

and in which central slits 88, 89 are formed to define a handle cavity. This provides two handle flaps 90, 91 which can be raised out of the flat surface to provide a self-handle. It is evident that instead of a self-handle, a separate handle piece could be attached such as by cementing or stapling, if preferred.

Blank 110 of FIG. 7 includes a neck edge 111, a bottom edge 112, and two side edges 113, 114.

A bottom surface 115 is defined by a bottom front score 116, a central segment 117 of the bottom edge, and a pair of bottom side scores 118, 119. The bottom surface is generally trapezoidal, score 116 being parallel to central segment 117. Scores 118 and 119 converge toward each other as they approach the bottom front score.

The device is symmetrical around a center line 120. Elements recited for the surfaces on one side thereof are the same as those on the other.

Contiguous to the bottom side scores are two pairs of body flute surfaces 121, 122, 123 and 124. Body flute surfaces 121 and 123 are contiguous to and partially bounded by bottom side scores 118, 119, respectively.

Body flute surfaces 121 and 123 are further bounded by segments 125 and 126 of the bottom edge, and by body flute scores 127, 128, respectively. Body flute surfaces 122 and 124 are bounded by segments 129 and 130 of the bottom edge, and by body side scores 131, 132, respectively, and also by body flute scores 127 and 128, respectively. Body flute surfaces 121-124, inclusive, are substantially isosceles triangles, and are all nearly congruent.

Bottom front score 116, bottom side score 118, body flute score 127, and body side score 131 meet at a body flute base junction 133. Scores 116, 119, 128 and 132 meet at a body flute base junction 134. These junctions are not precisely points in the sense that all lines meet at a single point. Instead, they are indicated by dotted lines as regions to indicate a convergence therein. These regions do act as junctions, but each includes several spaced-apart points of intersections, to minimize the amount of folding taking place within a limited area. It is desirable, but not essential, to limit the number of folds adjacent to a single point. However, as to function of the surfaces which converge at these junctions, their result is still that the junctions function substantially as points in determining the shape and configuration of adjacent areas.

Two side surfaces 137, 138 are contiguous to body flute surfaces 122 and 124. Surfaces 137 and 138 are bounded by side scores 131, 132, body top scores 139, 140 and side transition scores 141, 142, respectively. The side transition scores are essentially continuations of the bottom front score and emanate from the respective body flute base junctions 133 and 134 to front junctions 143, 144, respectively. The body top scores interconnect respective front junctions with side junctions 145, 146 at which meet body side score 131 and body top score 134 at junction 145, and body side score 132 and body top score 140 at junction 146. In addition, closure score 129 intersects other scores at junction 145.

A neck bottom surface 147 is contiguous to bottom surface 115 and is bounded at one side by bottom front score 116. Two neck side scores 148, 149 converge as they extend forwardly away from the bottom surface and diverge on the opposite side of tab score 185, beyond which they intersect the neck edge of the blank. The neck side scores are not, strictly speaking, straight lines because of this deviation, but their segments are.

Two first neck flute surfaces 154, 155 are formed contiguous to the neck bottom surface and are bounded partly by neck side scores 148 and 149, respectively. They are also bounded by neck flute scores 156, 157 and by the tab score. The neck flute scores intersect the region defined as body flute base junctions 133 and 134,

although they are somewhat spaced apart from the neck side scores to avoid excessive folding stress concentrations at a single point as hereinabove described.

Second neck flute surfaces 158, 159 are formed contiguous to respective first neck flute surfaces and are bounded by one side by neck flute scores 156 and 157. They are additionally bounded by neck top scores 160, 161, by side transition scores 141, 142, respectively, and also by tab score 185. They are essentially quadrilateral surfaces. They intersect top scores 139 and 140 at front junctions 143 and 144.

Neck top surfaces 170, 171 lie contiguous to second neck flute surfaces 158, 159, respectively. They are bounded on one side by neck top scores 160 and 161, respectively. Top medial scores 172, 173 extend from front junctions 143, 144, respectively, toward the side edges. Their precise location will be discussed more fully below.

Body top surfaces 176, 177 are contiguous to side surfaces 137 and 138, respectively, and are partially bounded by them.

The upper edge, preferably but not necessarily, has a rounding tab 180. Locking tab 183 is contiguous to neck top surface 170. The rounding tab folds down to provide a rounded edge which will not cut, and the locking tab can be inserted under it to lock the neck into an integral shape.

A snap score 190 intersects top medial score 173, and preferably is its perpendicular bisector.

A self-handle and top reinforcement is provided to give a convenient means for carrying the device, and also for keeping it in its erected configuration. A first handle hinge score 191 is contiguous to neck and body top surfaces 170 and 176. A second handle hinge score 192 is spaced from score 191, and is parallel to it. Halfway between the two is handle center score 193. First and second handle surfaces 194 and 195 are formed between scores 192 and 193, and between scores 191 and 193, respectively. Finger holes 196 are cut in the handle surfaces. The handle surfaces are preferably mirror images so that they can be hinged together around score 193. Top medial score 172 courses across surfaces 194 and 195, and is preferably normal to score 193.

Top reinforcement surface 197 is contiguous to surface 194. Top medial score 172 courses across it.

The folding up of the device of FIGS. 1-7 will now be described. FIG. 1 shows the ultimate setup configuration, and it will be observed that the bottom surface is to be flat on the bottom with the body flute surfaces folded together and overlaying the bottom surface. The blank can be folded in either direction from flat, so that the numerals refer to scores and surfaces on both sides of the blank. The side surfaces rise from the bottom, which bottom includes the folded-in body flute surfaces. The body top surfaces are folded over, one atop the other. The closure tabs are folded up and forward and cemented together to make a good fluid seal for the bottom edge. Alternately, they can be left flat and sealed flat together. Also, cement may be placed between the overlapping body surfaces to make a fluid seal there.

The neck bottom surface is folded up to make an angle with the bottom. When the body top surfaces were folded over, the neck top surfaces were also folded over. At this time, the neck flute scores will have been pushed inward into the neck so as to form the neck flutes and the neck transition surfaces and bottom transition surfaces will have cocked angularly relative to each other to compensate for the angular difference between their adjacent surfaces.

Ordinarily a certain amount of fluid sealing will be accomplished between the neck top surfaces, such as by cementing, to stop leakage. This may be accomplished in the same operation as when the body top surfaces were glued together. Rounding tabs, if used, will have been folded over, and the locking tabs inserted before the

cementing operation, and this will be found convenient in holding the device temporarily assembled during that time.

FIG. 3 shows an interim step in the folding up operation, the body top surfaces being normal to the plane of FIG. 3 in that illustration, so that only their edges show. At this time, the bottom flute scores 27 and 28 will be pushed inward and folded so that the body flute surfaces 21, 22, 23, 24 fold flat to overlay the bottom surface. The side surfaces still extend generally horizontal and sideward while, when a neck medial score is used as illustrated, that portion of the neck bottom surface which lies between it and the bottom front score, will move down and overlay a portion of the bottom surface. The neck flute scores are also pushed inward.

The step following that shown in FIG. 3 is to round over and lock the tab scores and rounding tabs. Also the closure tabs are folded upward at the bottom edge. Then a sealing operation, such as cementing, is carried out by sealing between the neck top surfaces, the bottom top surfaces, and the closure tabs. The device is then fully set up.

Should only a top medial score be provided, and not a neck medial score, then the neck will be folded over onto the top of the body for this assembly technique. However, this is somewhat more difficult, so that ordinarily both top and neck medial scores will be provided, thereby enabling the device to be stored flat either in the configuration shown in FIG. 5 with the neck extended, or, as shown in FIG. 6, with the neck reversed and overlaying the body. However, in the event that it is not desired to provide means for the device to be stored in both of the flattened configurations, then either the top medial scores or the neck medial score may be eliminated.

It can also be seen in FIG. 3 how the neck transition surfaces and the bottom transition surfaces have folded atop each other to compensate for the difference in direction of their adjoining surfaces.

The small quadrilateral regions which lie between the neck side scores, neck flute scores, side medial scores and the side transition scores perform a transition function, but it is one of relieving stress concentration by separating scores 49 and 57, and scores 48 and 56.

The handle portion is utilized by lifting the handle flaps up off body top surfaces and pushing inwardly between them the flap formed by the central slits.

If a self-handle is not used, then one of the body top surfaces need be only a margin for cementing purposes. However, assembly techniques are simplified if two full body top surfaces are used, because then the edges can readily be matched. Alternatively, somewhat more than one-half of each of the body top surfaces and neck top surfaces could be provided, and a seam formed up the middle of the set up top and body. However, this, too, is a bit more difficult to assemble, and in both cases, it may be necessary to either sacrifice the locking tabs, or provide a more complicated arrangement for them.

Also, it is possible to fold the body flute surfaces underneath bottom surface 15 instead of atop it, and still have the same structure. Therefore the term "overlay" as used in reference to the arrangement of the body flute surfaces relates to either folding the body flute surfaces so they are inside the urinal and adjacent to the top face of the bottom surface, or outside the urinal adjacent to the bottom face of the bottom surface.

Instead of turning closure tabs 94 over and sealing them, they may be sealed flat, and by eliminating or shortening the closure tabs on the flute surfaces, a smooth sealing joint can be made directly between the closure tabs on the bottom surface and the body top surfaces. Ordinarily, best assembly technique will suggest that there be at least some closure tab left on the body flute surfaces so that they can be cemented in place. The closure tabs on the bottom surface and on the body top surfaces would then preferably be a bit longer so they

could "feather" at the edge and make a direct seal without being held apart by the body flute surfaces.

It will be observed that the top medial score and the neck medial score lie substantially parallel to each other when the device is flattened and the location of the junctions are defined as being along the line of fold which results when the neck is flattened and the body is flattened against the bottom.

The folding up of the blank shown in FIG. 7 will now be described with reference to FIGS. 7-9. The blank is laid flat, with bottom surface 115 facing upwardly. The blank is folded at bottom side scores 118 and 119, and at neck side scores 148 and 149. These motions bring body flute surfaces 121 and 123 over the bottom surface, and first neck flute surfaces 154 and 155 over the neck bottom surface. Bending will occur at bottom front score 116 to permit these successive movements.

Next, the blank is folded at body flute scores 127 and 128, and at neck flute scores 156 and 157, so that body flute surfaces 122 and 124, and second neck flute surfaces 158 and 159 are folded over the respective body and neck flute surfaces to which they are adjacent. This forms a pair of flutes at both sides of the structure.

The blank is next folded at body side scores 131 and 132, at top scores 139 and 140, and at neck top scores 160 and 161. By this action, body top surface 177 and neck top surface 171 are brought over bottom surface 115 and neck bottom surface 147, and top surface 176 and neck top surface 170 are brought over the reverse sides of surfaces 177 and 171, to which they may be cemented. This movement causes side surfaces 137 and 138 to rise and form the major portion of the side of the structure above the bottom. Neck flute surfaces 158 and 159 form a continuation of them in the neck region.

The bottom edge segments overlay each other neatly, and may be cemented together. Closure tab 200 is folded underneath the bottom, along closure score 201 and cemented there to form a positive fluid seal around the edge segments. The rear edge of the folded structure is thus linear, and reliably, conveniently, and positively sealed.

A handle is formed by folding the blank at scores 191, 192 and 193, to bring handle surfaces 194 and 195 together. It is preferable to cement these surfaces together, in order to provide the most effective snap-locking arrangement, but this is not essential. Top reinforcement surface 197 is then cemented to the reverse side of neck top surface 171.

At any convenient time during the above assembly operations, rounding tab 180 is folded over and locking tab 183 is inserted inside its fold to give reinforcement and a smooth edge to the open end of the neck.

The device may be collapsed by folding in the flutes and pressing the top toward the bottom. It can readily be folded to substantially the condition shown in FIG. 6, but not to that of FIG. 5. When it is collapsed, the handle is folded along the top medial score so that it can both lie flat against the top, but can fold with the rest of the top medial score. The snap score permits the top to form a slight dome at the mid-point of the handle, which tends to be a stable condition when the handle is erect. In fact, it is not possible to collapse the structure with the handle erect, and, with the snap structure, the handle will not fold down unless forcibly pushed. When it is folded over, and the center of the top pressed down, the snap action is effective in further collapsing the device and holding it collapsed. This is a second stable condition.

The scores are generally straight lines and the various surfaces are, in general, triangular, quadrilateral, or the like, and lie flat. Complex curved lines and boundary surfaces and complex three-dimensional surfaces when set up are in general avoided, which gives better folding characteristics and, in operation, a more stable unit. Furthermore, the device is thoroughly and reliably sealed along straight edges and is made of a single piece, thereby

obviating the sealing problems which have existed in prior art devices.

The preferred embodiment has the additional advantage of fewer scores, plus a pronounced snap-acting feature. This latter is inherently present in the device of FIGS. 1-6, but not to the extent of that shown in FIGS. 7-9.

This invention is not to be limited to the embodiments shown in the drawings and described in the description which are given by way of example and not of limitation, but only in accordance with the scope of the appended claims.

I claim:

1. A disposable, collapsible urinal formed up from a scored blank of foldable material to a non-leaking structure having a bottom, a body at least partly overlaying the bottom, said body including a pair of sides connected to the bottom, a neck extending upwardly and at an acute angle to the bottom to form a neck having a neck bottom, a neck top and two fluted neck sides joining the neck top and neck bottom, the neck having an opening at its end farthest removed from the bottom, and joining to the bottom and body at its other end, said blank when flat having: a bottom edge, two side edges and a neck edge; a substantially trapezoidal bottom surface bounded by a pair of bottom side scores, a bottom front score and a closure score, the closure score and bottom front scores being parallel and the bottom side scores converging toward the bottom front score; two pairs of body flute surfaces, one pair being contiguous to each of the bottom side scores, a first surface of each pair being bounded by the respective bottom side score, a bottom flute score, and a closure score, the other surface of each pair being bounded by the respective bottom flute score, a body side score, and a closure score, the body side score, bottom flute score and bottom side score all substantially intersecting at a body flute base junction at the respective ends of the bottom front score, and said intersecting scores diverging from each other so that the body flute surfaces form isosceles triangles with acute apex angles; two side surfaces, each bounded by a respective one of the body side scores, a body top score, and a side transition score, the body side score and body top score intersection at a side junction where the body side score intersects its respective closure score, the side transition scores being substantial continuations of the bottom front score and intersecting the body top score at a front junction, each body top score continuing past its respective front junction to a front transition junction spaced from the front junction; a neck bottom surface contiguous to the bottom surface and bounded by the bottom front score, a pair of neck side scores, and a neck edge, one neck side score extending away from each of the body flute base junctions to the neck edge, said neck side scores converging toward each other as they approach the neck edge, whereby the neck bottom surface is substantially trapezoidal; a first neck flute surface contiguous to each of the neck side scores bounded by a neck side score, the neck edge, and a neck flute score which extends from the body flute base junction and makes an acute angle with the respective neck side score; a second neck flute surface contiguous to each first neck flute surface which is bounded by the neck edge, the neck flute score, a neck top score which extends from the neck edge at a point spaced from the neck flute score's intersection therewith, to the front transition junction, and a side medial score which extends from the front transition junction to a neck medial junction on the neck side score spaced from the body flute base junction; a triangular neck transition surface bounded by a neck-body transition score extending between the front junction and the neck medial junction, the side medial score, and that portion of the body top score which lies between the front junction and the front transition junction; a triangular bottom transition surface bounded by the neck-body transition score, the side transition score, and that portion of the neck side score which lies between the neck medial junction and the body flute base junction; two

body top surfaces, one contiguous to each of the side surfaces and bounded by a respective top score, a side edge of the blank, a closure score intersecting the respective side junction and a top medial line from the front transition junction to the side edge; a neck top surface bounded by the neck top score, said neck medial line, the side edge and the neck edge; there being a medial line between the two neck medial junctions, and a medial score along one of said medial lines, the closure score being spaced from the bottom edge of the blank to form closure tabs, whereby the urinal is folded up by folding the bottom flute score and the bottom side score so that the body flute surfaces and the bottom flute score overlay the bottom surface, the body side scores and body top score being folded so that the side surfaces rise from the body flute surfaces and the body top surfaces overlap each other, the bottom front score being folded so that the neck bottom surface rises forwardly from the bottom surface, the neck scores being folded so that the neck top surfaces overlap each other, the transition scores folding so that the neck and bottom transition surfaces make an angle with each other, whereby the device is set up, and to collapse it the neck flute scores are folded so that they overlay the neck bottom surface, the neck bottom surface immediately contiguous to the bottom surface is folded over the bottom surface, and the neck is flattened down and folded along the medial score so that it encloses the medial score, the bottom being closed by sealing together at least some of the closure tabs, and the body being closed by sealing together the body top surface.

2. A urinal according to claim 1 in which the neck edge is scalloped to form rounding tabs and a pair of locking tabs, the rounding tabs being formed between and on each side of the neck flute scores, whereby the rounding tabs can be folded against the neck to present a smooth edge, and at least one of the locking tabs can be inserted beneath one of the rounding tabs to lock the neck together.

3. A urinal according to claim 1 in which a handle is provided on one of the body top surfaces.

4. A urinal according to claim 1 in which handle slits are formed in one of the body top surfaces to provide a self-handle.

5. A urinal according to claim 1 in which the medial score is formed along the top medial line.

6. A urinal according to claim 1 in which the medial score is formed along the neck medial line.

7. A urinal according to claim 1 in which medial scores are formed along both medial lines.

8. A disposable, collapsible urinal formed up from a scored blank of foldable material to a non-leaking structure having a bottom, a body at least partly overlaying the bottom, said body including a top, a pair of sides and a pair of side flutes connected to the bottom, a neck extending upwardly and at an acute angle to the bottom to form a neck having a neck bottom, a neck top, and two fluted neck sides joining the neck top and neck bottom, the neck having an opening at its end farthest removed from the bottom, and joining to the bottom and body at its other ends, said blank when flat having: a bottom edge, two side edges and a neck edge; a substantially trapezoidal bottom surface bounded by a pair of bottom side scores, a bottom front score and an edge, the edge and bottom front score being parallel, and the bottom side scores converging toward the bottom front score; two pairs of body flute surfaces, one pair being contiguous to each of the bottom side scores, a first surface of each pair being at least partially bounded by the respective bottom side score and a bottom flute score, the other surface of each pair being at least partially bounded by the respective bottom flute score and a body side score, the body side score, bottom flute score and bottom side score all

substantially intersecting at a body flute base junction at respective ends of the bottom front score, and said intersecting scores diverging from each other so that the body flute surfaces form substantially isosceles triangles with acute apex angles; two side surfaces, each bounded by a respective one of the body side scores, a body top score, and a transition score, the transition scores being substantial continuations of the bottom front score and intersecting the body top score at a front junction; a neck bottom surface contiguous to the bottom surface and partially bounded by the bottom front score, and a pair of neck side scores, one neck side score extending away from each of the body flute base junctions, said neck side scores converging toward each other as they depart from the bottom front score; a first neck flute surface contiguous to each of the neck side scores partially bounded by a neck side score, and a neck flute score which extends from the body flute base junction and makes an acute angle with the respective neck side score; a second neck flute surface contiguous to each first neck flute surface which is partially bounded by the neck flute score, a neck top score which extends from the respective front junctions, and a transition score which extends from the body flute base junction to the front junction; two body top surfaces, one contiguous to each of the side surfaces and partially bounded by a respective top score; two neck top surfaces, each partially bounded by a respective neck top score, and a top medial score, whereby the urinal is folded up by folding the blank at the bottom flute scores and the bottom side scores so that the body flute surfaces and the bottom flute score overlay the bottom surface, the blank being folded at the body side scores and body top scores so that the side surfaces rise from the body flute surfaces and the body top surfaces overlap each other, the blank being folded at the bottom front score so that the neck bottom surface rises forwardly from the bottom surface, the blank being folded at the neck scores so that the neck top surfaces overlap each other, the blank being sealed at the joiner of the edges of the bottom surface and body flute surfaces, and at the overlapped neck top surfaces, whereby the device is set up, and whereby to collapse it the flute surfaces are pressed toward each other and the top pressed toward the bottom to form a rounding tab, and in which a locking tab is formed on one of the neck top surfaces.

9. A urinal according to claim 8 in which a rounding score extends across the blank and spaced from the neck edge to form a rounding tab, and in which a locking tab is formed on one of the neck top surfaces, whereby the rounding tabs can be folded against the neck to present a smooth edge, and the locking tab can be inserted beneath it to lock the neck.

10. A urinal according to claim 8 in which a closure score is provided across one of the body top surfaces to form a closure tab adapted to be folded over the edges of the body surfaces to form a fluid seal.

11. A urinal according to claim 8 in which a handle is provided integral with one of the body top surfaces, said handle being adapted to extend along the body and neck top when the urinal is set up, the top medial score coursing through the handle, whereby the handle, when set up, opposes folding of the structure along the top medial score.

12. A urinal according to claim 11 in which a snap score courses along the neck top surface and body top surface which do not have the handle, at an angle to the top medial score to provide for a domed snap-action structure in the top of the erected urinal.

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