

July 27, 1954

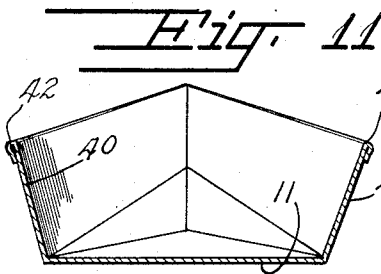
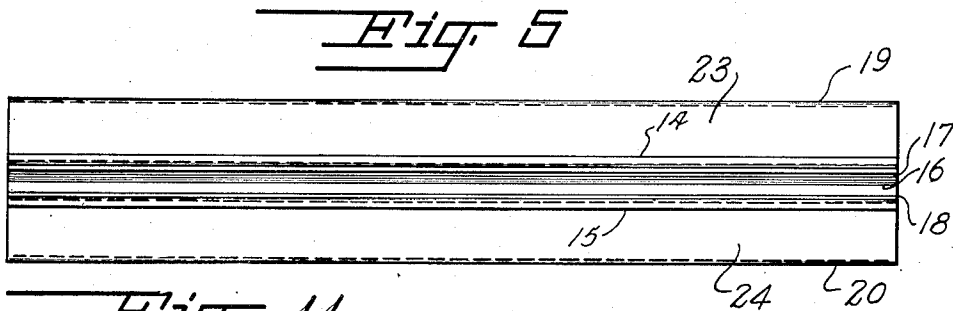
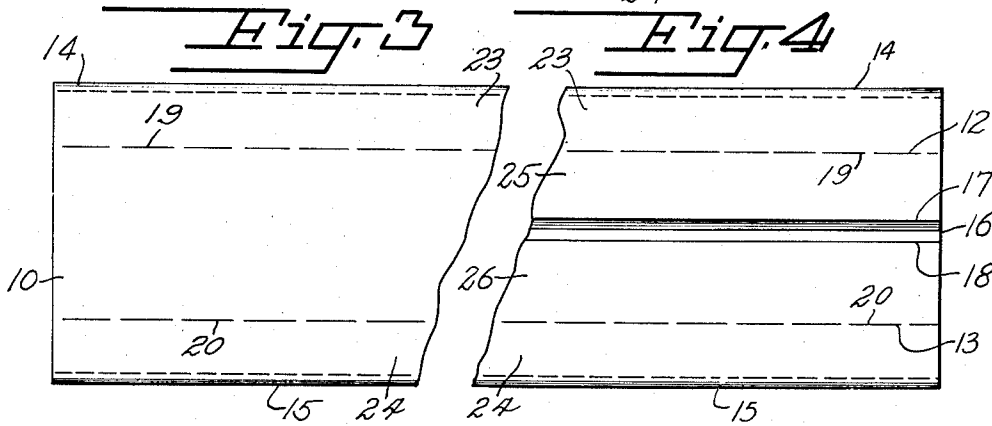
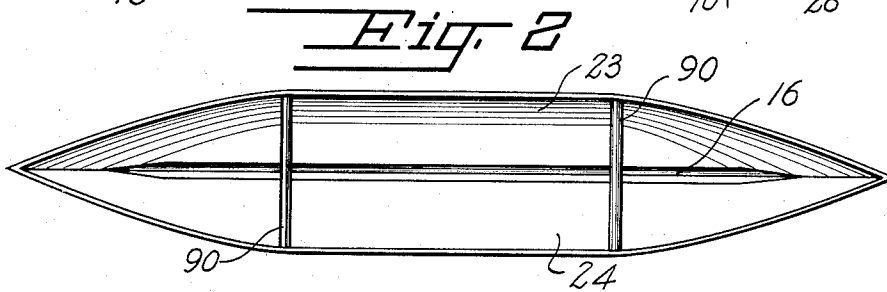
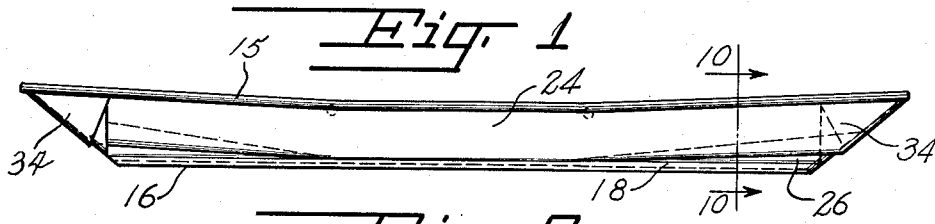
J. W. PORTER, JR

2,684,489

METHOD OF FORMING SEAMLESS BOATS

Filed Oct. 22, 1948

2 Sheets-Sheet 1



INVENTOR.
John W. Porter Jr.

BY Victor J. Evans & Co.

ATTORNEYS

July 27, 1954

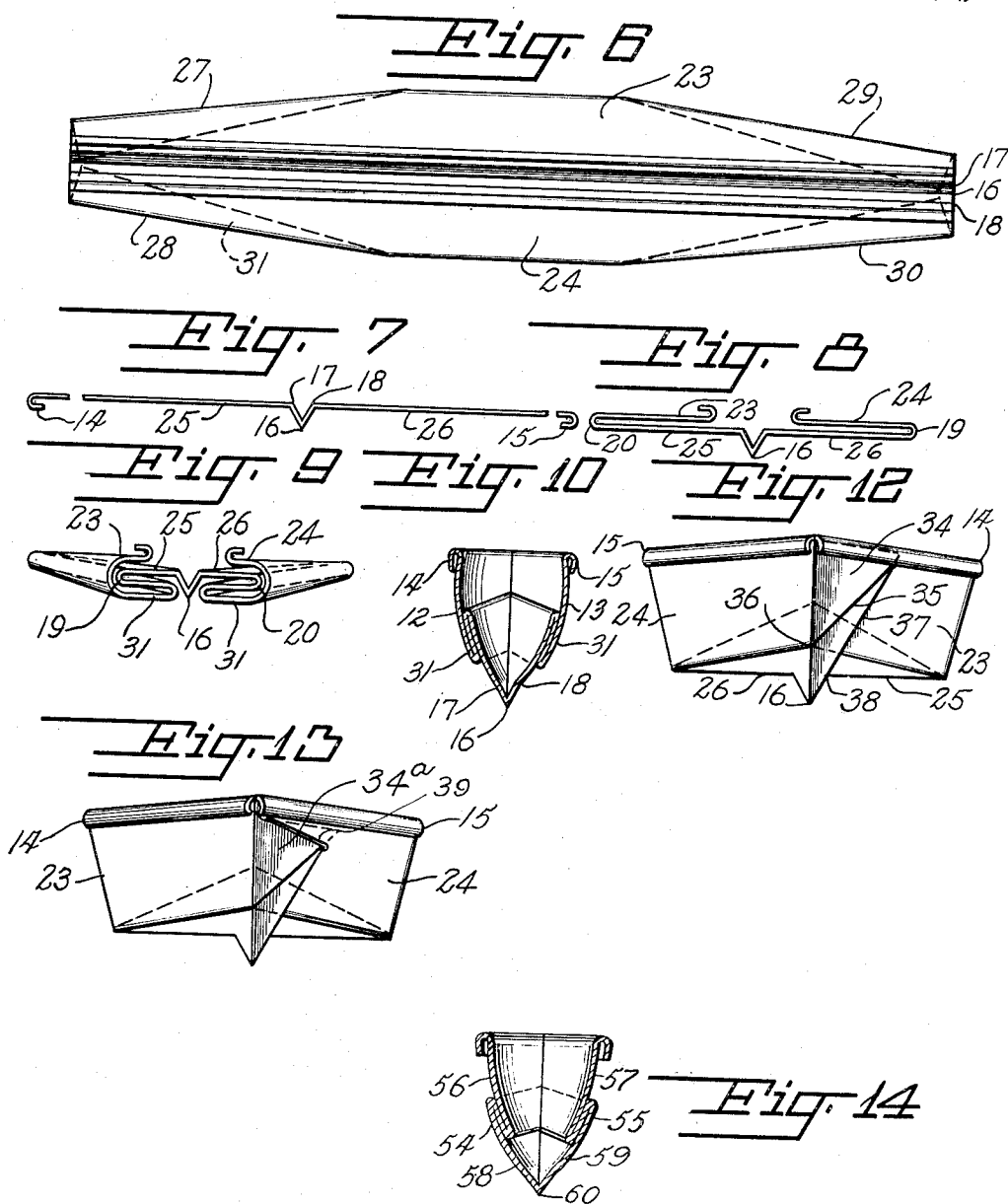
J. W. PORTER, JR

2,684,489

METHOD OF FORMING SEAMLESS BOATS

Filed Oct. 22, 1948

2 Sheets-Sheet 2



INVENTOR.
John W. Porter Jr.

BY Victor J. Evans & Co.

ATTORNEYS

UNITED STATES PATENT OFFICE

2,684,489

METHOD OF FORMING SEAMLESS BOATS

John W. Porter, Jr., Muskogee, Okla.

Application October 22, 1948, Serial No. 55,925

1 Claim. (Cl. 9—6)

1

This invention relates to a method of forming boats, such as canoes, rowboats and the like, which may be made full size or of a reduced size suitable for toys, and in particular includes a method of forming a continuous flat sheet of material into a boat by folding and without cutting the material or forming seams therein.

In the usual type of construction, even the most simple boat is formed with one panel forming a bottom and other panels forming sides and the edges of these panels are secured together by fastening elements. In the construction of a canoe, a sheet of material is formed over a framework and in this excess material, at certain points, is relieved or removed by seams and the like. With the usual type of construction, joints of some form are provided between the elements and in extreme cases, due to wear and exposure to the elements, the joints separate or leak. With this thought in mind, this invention contemplates a method of forming a hull of a boat wherein the hull is formed of one continuous sheet of bendable material with the material folded in such a manner that a hull is formed with a bottom, sides, and ends and the folded portions are folded over against the sides and secured in position by waterproof cement or other binding means.

The object of this invention is, therefore, to provide a method of folding a continuous sheet of material without cutting slits therein or removing parts therefrom whereby the sheet of material forms the hull of a boat.

Another object of the invention is to provide a method of forming the hull of a boat from a continuous sheet of material by folding in which means is provided for reinforcing the material.

Another object of the invention is to provide a method of forming the hull of a boat from a continuous sheet of material by folding the material, in which folded parts of the material reinforce the ends of the hull.

With these and other objects and advantages in view, the invention embodies an improved method of forming a hull of a boat by folding and bending a continuous sheet of material as hereinafter more fully described, set forth in the claim appended hereto, and disclosed in the accompanying drawings, forming part hereof, wherein:

Figure 1 is a view showing a side elevation of a boat formed by this improved method of folding a continuous sheet of material;

Figure 2 is a plan view of the boat shown in Figure 1 showing lateral spacing elements incorporated therein;

2

Figure 3 is a plan view showing one end of a sheet of material from which a boat hull may be formed with the fold lines indicated thereon and with the edges flanged;

Figure 4 is a similar view showing a V-shaped corrugation or rib extended through the center of the material;

Figure 5 is a plan view of the sheet of material with the corrugation formed in the center and with the sides folded over;

Figure 6 is a similar view showing triangular shaped sections folded under at the corners;

Figure 7 shows an end view of a sheet of material folded as shown in Figure 4 with parts broken away;

Figure 8 is a similar view showing the sides folded over as illustrated in Figure 5;

Figure 9 is an end view of the material folded as illustrated in Figure 6 with the thickness of the material and also the spaces between the layers of material exaggerated for the purpose of illustration;

Figure 10 is a cross-section through one end of the hull of the boat taken on line 10—10 of Figure 1 illustrating the pleats formed by the triangular shaped folds, as illustrated in Figure 6;

Figure 11 is a similar section through the hull of a boat with the V-shaped corrugation at the center omitted and with the bottom and sides substantially straight, said section being taken at the end of the triangular shaped folded sections of the hull;

Figure 12 is an end view of the boat formed as illustrated in Figure 1;

Figure 13 is a similar end elevation illustrating the parts folded with the upper edge of the fold at the end inserted in a slot in the side of the hull;

Figure 14 is a cross-section similar to that shown in Figure 10 illustrating a modification wherein the pleats are folded on the outside instead of on the inside of the sides of the boat.

With this improved method of forming a boat an elongated rectangular-shaped sheet of material 10 is formed with a depression on a line 16 midway between the sides and extended longitudinally through the sheet of material, the sides of the depression or keel formed thereby being defined by the lines 17 and 18 and with the depression formed the sheet of material is folded on lines 19 and 20, parallel to the keel and positioned substantially midway between the keel and sides of the sheet of material thereby forming the parts from which side walls 12 and 13 of the boat are

3

formed and these parts may or may not have beads 14 and 15 at the edges, as may be desired.

The outer side sections 23 and 24 on which the beads 14 and 15 are positioned are folded upon intermediate sections 25 and 26 whereby the parts are positioned as illustrated in Figure 5 with the side sections 23 and 24 upon the intermediate portions 25 and 26.

With the parts as illustrated in Figure 5 triangular-shaped sections at the corners are formed by folding the side sections 23 and 24 and intermediate portions 25 and 26 on lines 27 and 28 at one end and 29 and 30 at the other thereby providing triangular-shaped pleats 31 which are folded against the under surfaces of the intermediate portions 25 and 26.

From this position, as shown in Figure 6, the side sections 23 and 24 are bent upwardly to positions substantially at right angles to the intermediate portions 25 and 26 throughout the central portion of the boat and with the pleats 31 formed in the end portions the side sections and intermediate portions merge toward the ends forming points at the ends, with the side sections and intermediate portions forming arcuate side walls and with the pleats 31 positioned therein as illustrated in Figure 10.

With the side walls extended upwardly as illustrated in Figure 10 triangular-shaped portions 34 at each end of the boat are folded around the end on a line 35 extended inwardly from the end of the boat at the adjacent upper corner of said side wall with the triangular-shaped portion 34 of the side wall 24 extended around the end of the side wall 23 on the opposite side of the keel and with a similar triangular-shaped portion of the side wall 23 on the opposite side of the keel folded back upon itself to a line 37 which extends from the upper edge of the side wall 23 to a point 38 adjacent the keel. The upper edges of the portions 34 are inserted under the bead 15, and in Figure 13 a triangular-shaped section 34a is inserted through a slot 38 in the side wall on one side of the boat.

In the design shown in Figure 10 the pleats are folded on the outside of the walls, and it will be understood that the parts may also be folded with the pleats on the inside, as illustrated in Figure 14 wherein pleats 54 and 55 are formed in side walls having side sections 56 and 57 and intermediate portions 58 and 59. In this design the keel is indicated by the numeral 60.

In the design shown in Figure 11 a boat 11, similar to the boat shown in Figures 1 to 10 is illustrated, the boat 11, having a flat bottom with side walls 40 and 41, and the upper edges of the side walls being provided with beads 42 and 43. The boat may, therefore, be provided with or without a keel, as may be desired.

With the parts formed in this manner a seam-

4

less boat is provided in which there are no seams or connected edges in which leaks may occur, and the pleats not only take up excess material resulting from forming the side walls inwardly to points at the ends of the hull, but also reinforce the side walls at the ends where reinforcement is required. As illustrated in Figure 2, the hull of the boat may be provided with transversely disposed stays 90 for retaining the side walls of the boat in spaced relation.

It will be understood that other modifications, within the scope of the appended claim, may be made in the method of forming a boat without departing from the spirit of the invention.

What is claimed is:

The method of forming a seamless boat which comprises forming a longitudinally disposed depression in a sheet of material on a line midway between the sides of said sheet to form a keel, folding side sections of said sheet of material on lines parallel to the keel and positioned substantially midway between the keel and sides of said sheet, said side sections being folded upon the intermediate portions of the sheet, folding triangular-shaped portions at the corners of said folded side sections and corresponding portions of the intermediate portions of the sheet downwardly on diagonally disposed lines extended from points on the ends of the sheet and spaced from the keel to intermediate points on said lines parallel to the keel against the under surfaces of the intermediate portions of the sheet to form pleats, bending said side sections of the sheet with the folded triangular-shaped portions forming the pleats in the ends thereof upwardly to positions substantially at right angles to the sheet to form side walls with the pleats utilizing excess material of the side walls at the ends whereby the side walls curve to points at the bow and stern, and at each end of the boat, folding a triangular-shaped portion of one of said side walls on a line extended inwardly of the boat from the adjacent upper corner of said side wall around the end of the side wall on the opposite side of the keel with a similar triangular-shaped portion of said side wall on the opposite side of the keel folded back upon itself and positioned under the portion of the side wall folded around the adjacent end of the boat.

References Cited in the file of this patent

UNITED STATES PATENTS

Number	Name	Date
2,001,365	Lindstrom	May 14, 1935
2,028,543	Goldberg et al.	Jan. 21, 1936

FOREIGN PATENTS

Number	Country	Date
4,695	Great Britain	Mar. 18, 1889