Jan. 11, 1955 J. A. MAXWELL 2,699,134

METHOD OF FORMING STAINLESS STEEL SODA FOUNTAIN TOPS

Filed July 17, 1947

8 Sheets-Sheet 1

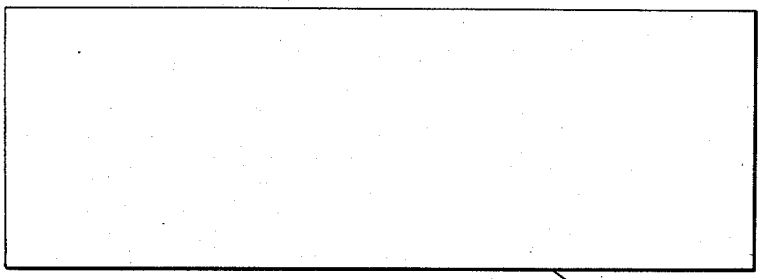


Fig. 1

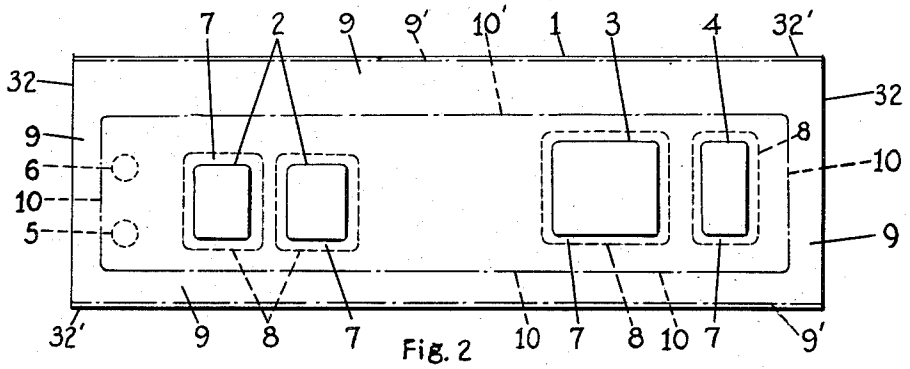


Fig. 2

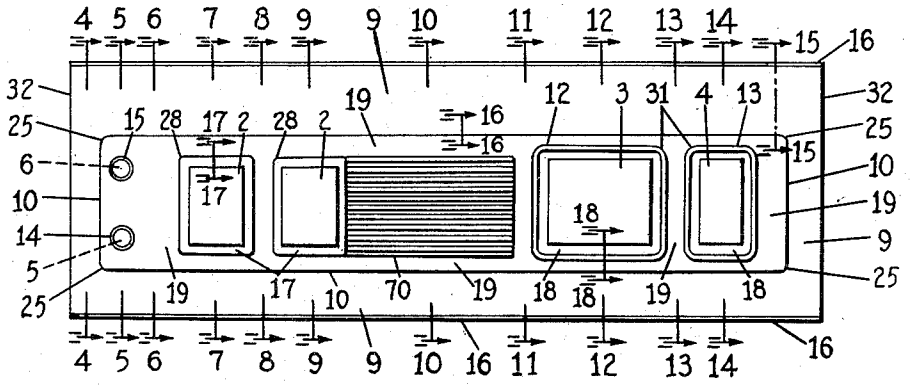


Fig 3

INVENTOR.

John A. Maxwell

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METHOD OF FORMING STAINLESS STEEL SODA FOUNTAIN TOPS

Filed July 17, 1947 8 Sheets-Sheet 2

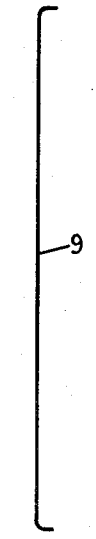


Fig. 4

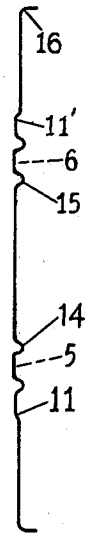


Fig. 5

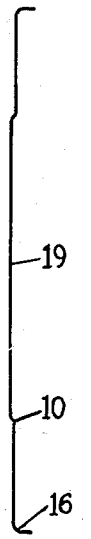


Fig. 6

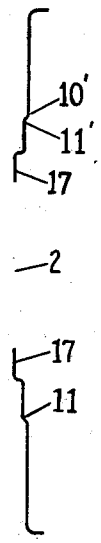


Fig. 7



Fig. 8

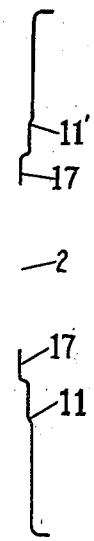


Fig. 9

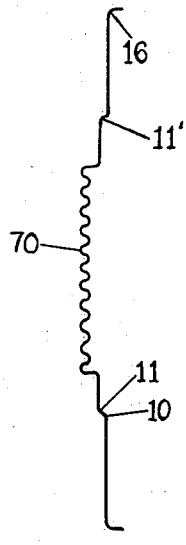


Fig. 10

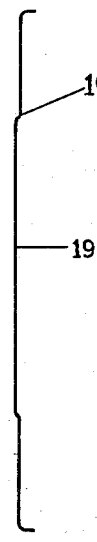


Fig. 11

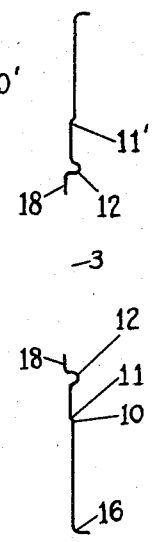


Fig. 12

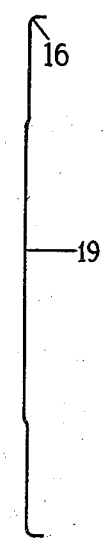


Fig. 13

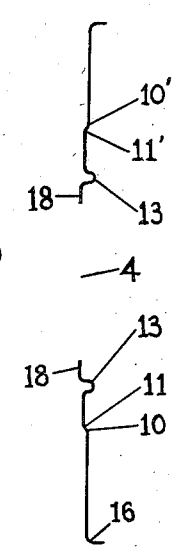


Fig. 14

INVENTOR.

John A. Maxwell

Jan. 11, 1955 J. A. MAXWELL 2,699,134

METHOD OF FORMING STAINLESS STEEL SODA FOUNTAIN TOPS

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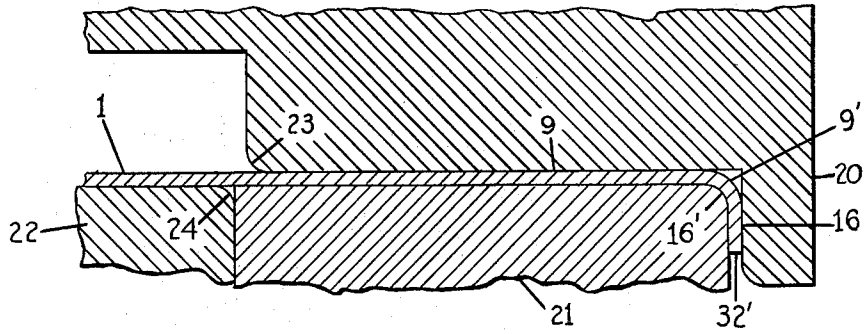


Fig 15

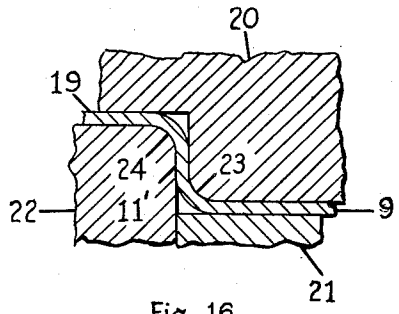


Fig 16

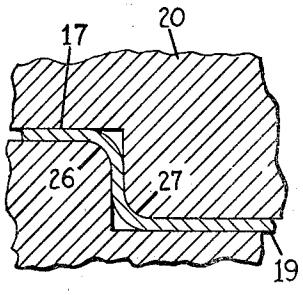


Fig 17

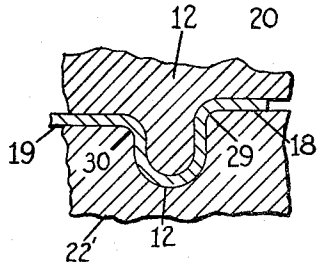


Fig 18

INVENTOR.

John A. Maxwell

Jan. 11, 1955 J. A. MAXWELL 2,699,134

METHOD OF FORMING STAINLESS STEEL SODA FOUNTAIN TOPS

Filed July 17, 1947 8 Sheets-Sheet 4

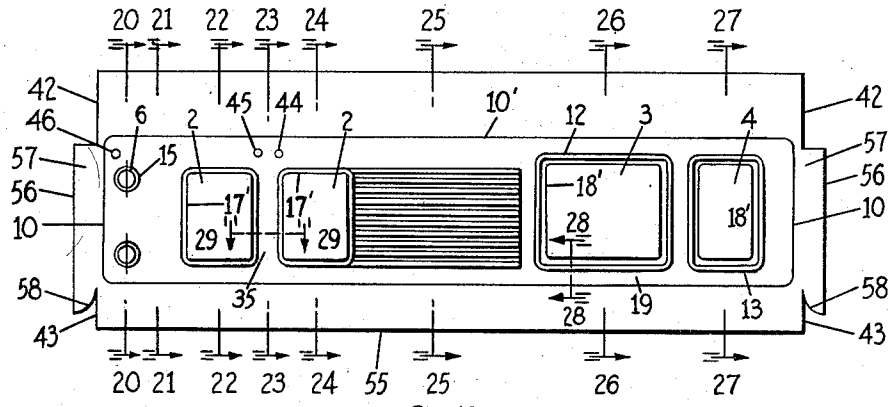


Fig. 19

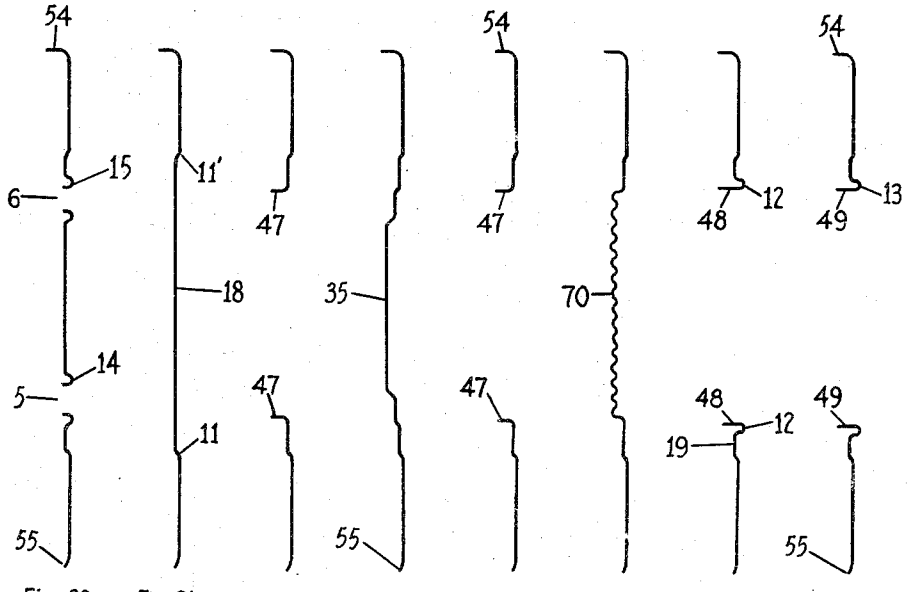


Fig. 20 Fig. 21 Fig. 22 Fig. 23 Fig. 24 Fig. 25 Fig. 26 Fig. 27

INVENTOR.

John A. Maxwell

Jan. 11, 1955 J. A. MAXWELL 2,699,134

METHOD OF FORMING STAINLESS STEEL SODA FOUNTAIN TOPS

Filed July 17, 1947 8 Sheets-Sheet 5

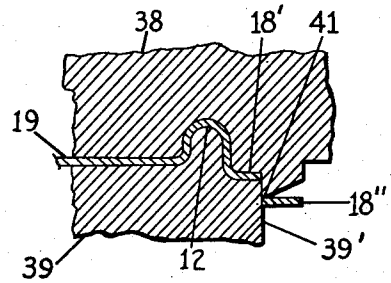


Fig. 28

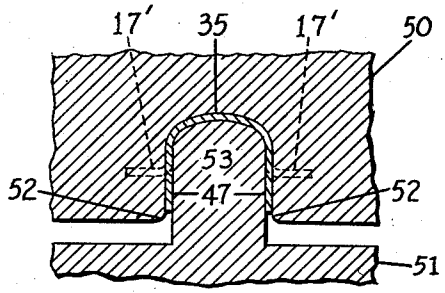


Fig. 29

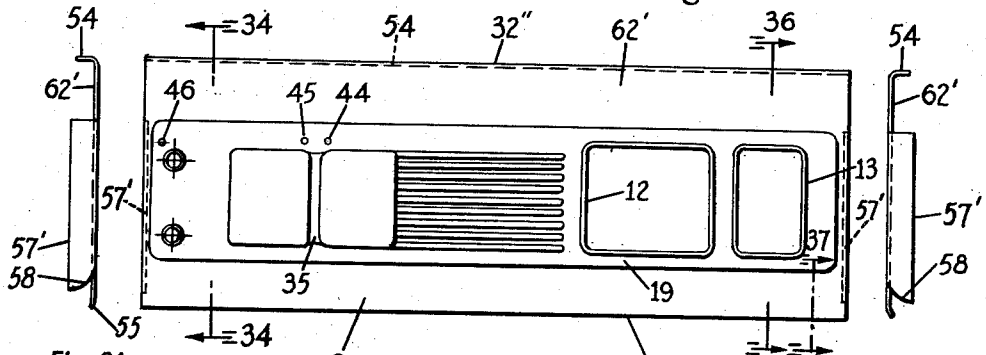


Fig. 31 Fig. 30 Fig. 32

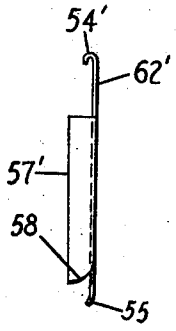


Fig. 33

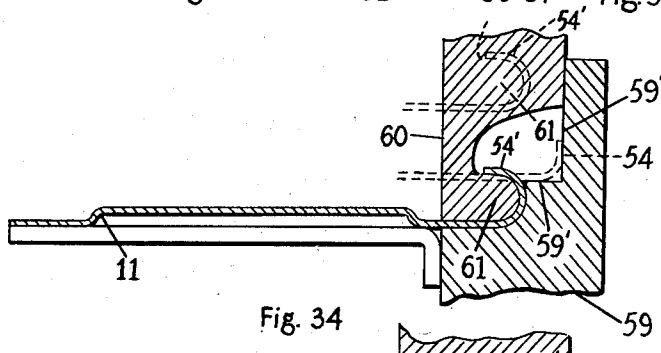


Fig. 34

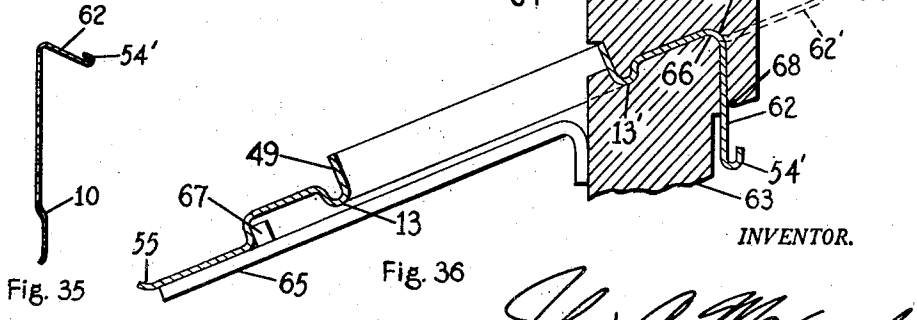


Fig. 35 Fig. 36

INVENTOR.

John A. Maxwell

Jan. 11, 1955 J. A. MAXWELL 2,699,134

METHOD OF FORMING STAINLESS STEEL SODA FOUNTAIN TOPS

Filed July 17, 1947 8 Sheets-Sheet 6

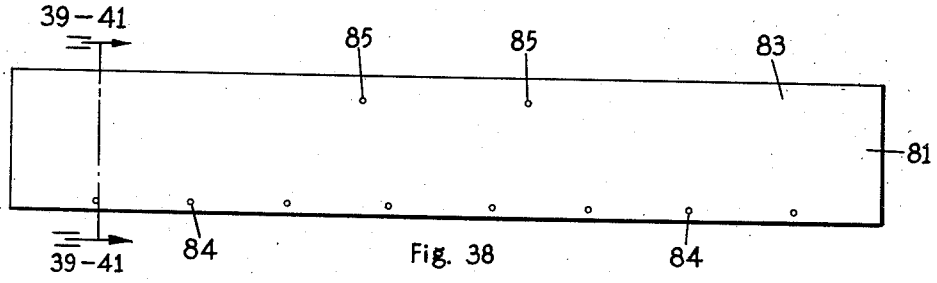


Fig. 38

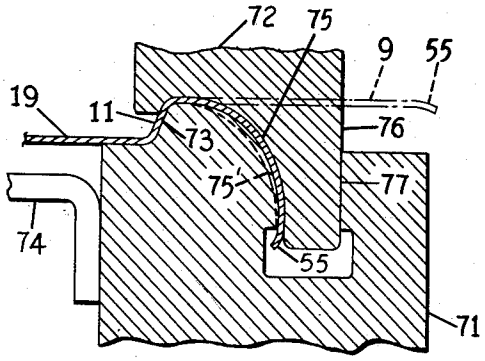


Fig. 37

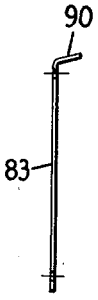


Fig. 39

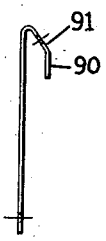


Fig. 40

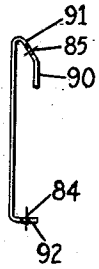


Fig. 41

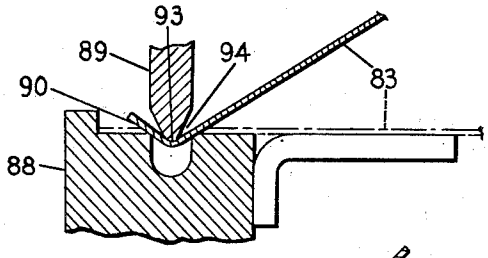


Fig. 42

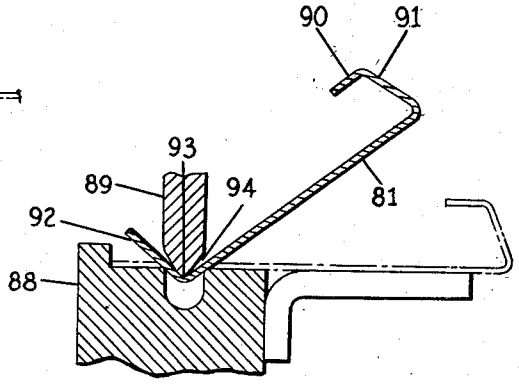


Fig. 44

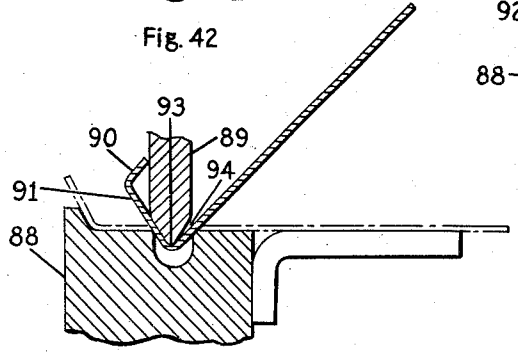


Fig. 43

INVENTOR.

John A. Maxwell

Jan. 11, 1955 J. A. MAXWELL 2,699,134

METHOD OF FORMING STAINLESS STEEL SODA FOUNTAIN TOPS

Filed July 17, 1947 8 Sheets-Sheet 7

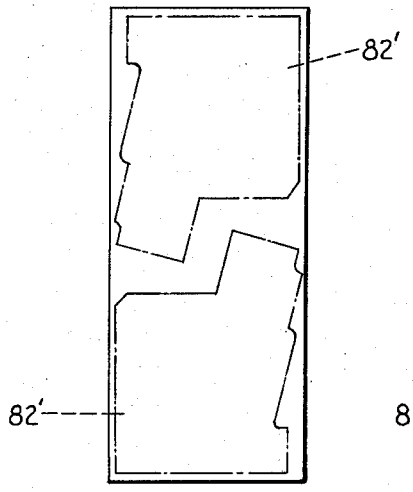


Fig. 45

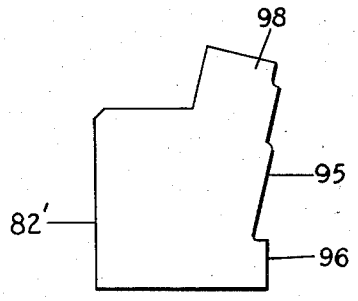


Fig. 46

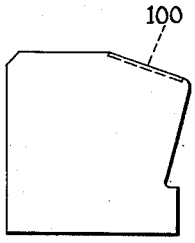


Fig. 47

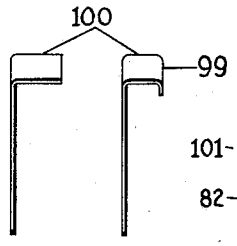


Fig. 48

Fig. 49

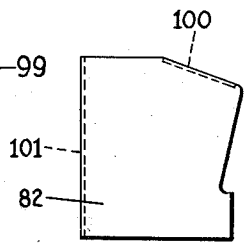


Fig. 50

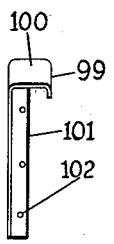


Fig. 51

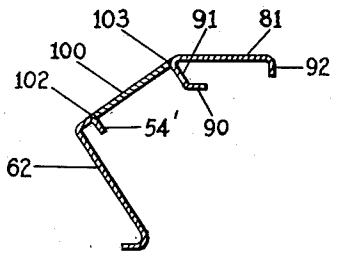


Fig. 52

INVENTOR.

John A. Maxwell

Jan. 11, 1955 J. A. MAXWELL 2,699,134

METHOD OF FORMING STAINLESS STEEL SODA FOUNTAIN TOPS

Filed July 17, 1947 8 Sheets-Sheet 8

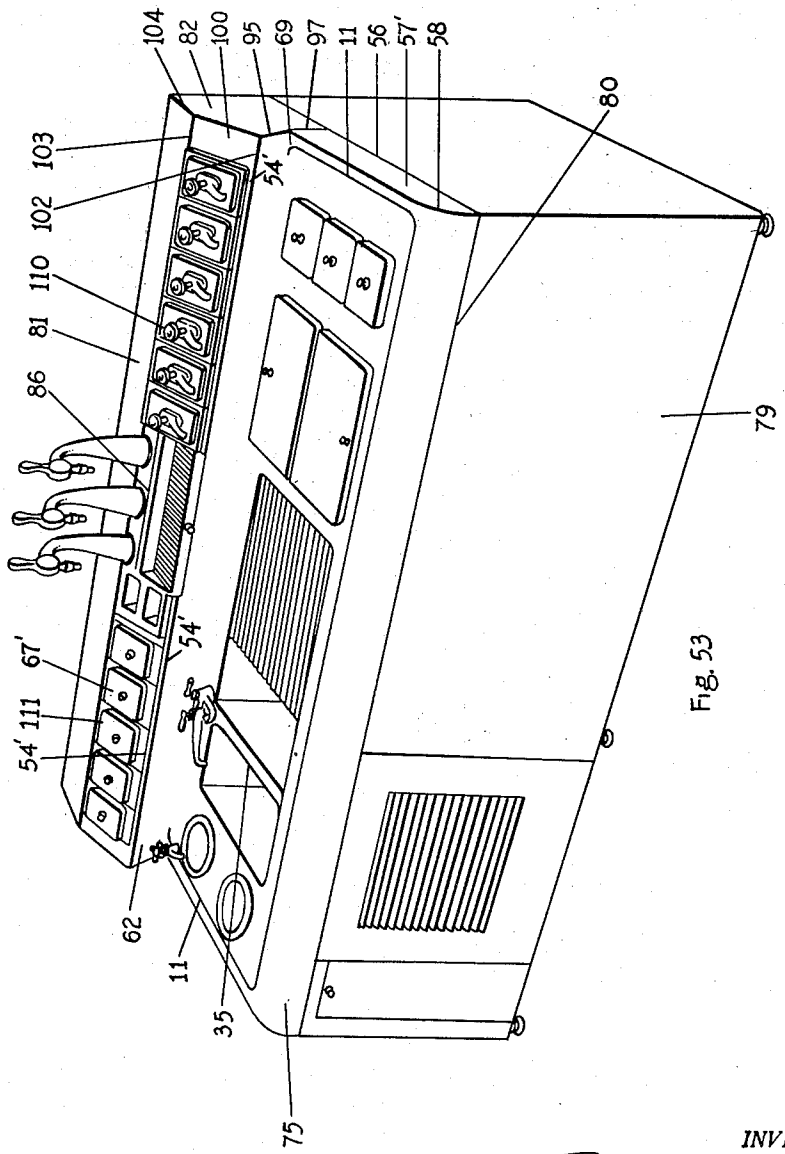


Fig. 53

INVENTOR.

John A. Maxwell

United States Patent Office 2,699,134
Patented Jan. 11, 1955

2,699,134

METHOD OF FORMING STAINLESS STEEL SODA FOUNTAIN TOPS

John A. Maxwell, Grosse Pointe, Mich.

Application July 17, 1947, Serial No. 761,466

1 Claim. (Cl. 113—116)

This invention relates to the forming of the top capping of a soda water fountain from stainless steel, and is particularly concerned with a top capping formed primarily of high tensile stainless steel having the welded joints reduced to a minimum.

Heretofore, in the manufacture of the soda water top capping several methods have been used, all of which form the top capping by the use of hand labor, and are therefore very expensive because of the large amount of highly skilled labor required for forming and assembling the top capping.

In a method commonly used today for soda water fountains of the type described herein, a single sheet of metal is used to form the top capping proper. This sheet is bent downwardly at the front to form a curved flange to register at its lower end with the front panel. At the rear of the top capping proper the sheet is bent to form an upwardly and forwardly inclined flange. The top capping is then completed by a narrow rear panel and two side panels, which often extend above the level of the main panel to form splash boards. These various parts are then assembled on a frame, sometimes of wood, and screwed, bolted, soldered or welded into place. Aligned with the syrup containers, often in the center, or at one or both ends, is fitted a draft head, drain station for the water and soda water faucets. The various utility containers such as the sinks are then soldered to flanges which have been peened down around the edges of holes in the top and a separate corrugated metal drainboard is soldered or bolted in a hole in the top.

Such a makeshift job, requiring a large amount of highly skilled hand labor, has been resorted to largely due to the metallurgical characteristics of high tensile stainless steel. The result is far from the artistic design desired which is a commonly accepted requirement of articles formed of ordinary sheet steel. The drawing of artistically shaped automobile fenders, side panels, roof panels and other body panels as well as refrigerator panels, stove panels, etc., is common practice today, but to date the skill in drawing ordinary steel has not resulted in its application to the drawing of the very large stainless steel panels necessary for the top cappings of soda fountains. This is the case even though the desirability of the artistic and utilitarian design that can be obtained in this manner is obvious, and especially the case where the desired artistic design can be combined with a substantial saving in the large amount of skilled hand labor required by previous methods of manufacture.

High tensile stainless steel is a material having entirely different metallurigcal properties from ordinary steel used in drawing metal panels. It has a much higher tensile strength so that great forces are required to form it in comparison with ordinary steel. It is highly elastic and if wrinkles are formed in a flat surface in the drawing operation, its high elasticity makes it almost impossible to press them out. It is for these reasons that the crude, expensive and makeshift means of today are used for forming the very large, generally flat panel required for soda fountain tops.

It is the object of this invention to draw, by means of dies, a top capping of artistic and utilitarian design and of the very large dimensions suitable for a soda fountain top capping.

A further object of this invention is to make possible the manufacture of a large top capping for the top of

soda fountains of a better quality and a smoother contour than those produced by the previous hand made methods of manufacture.

Another advantage of my method of manufacture resides in the fact that by practicing my method, a top capping of uniform high quality may be produced in a minimum of time.

Still another object of my method of manufacture is that once the dies are made, the various steps are comparatively simple and easily applied, so that expert or highly skilled labor need not be employed for applying it. In contrast, metal workers for forming perfect contoured panels by hand are among the most highly skilled workers and such artisans are not needed in my process.

Still another object of my invention is to form a top capping for a soda fountain with a contoured depressed area wherein anything spilt on the top is forced to drain into the sinks and is prevented from entering the openings into the other accommodations within the cabinet.

Still another object of my invention is to form a top capping assembly, including sinks and drainboard, wherein all joints, corners and crevices are eliminated so that the unit can be readily cleaned and maintained in a sanitary condition.

Still another object of my invention is to form a top capping unit which is rigid without requiring a frame for fastening together the various parts.

In the drawings:

Fig. 1 is a plan view of the sheet of stainless steel used for a blank in the forming of the forward part of my stainless steel top capping.

Fig. 2 is a plan view of the blanked out sheet which has been trimmed for size and certain openings rough blanked out by die No. 1.

Fig. 3 is the top plan view of the forward part of my top capping following the operation of die No. 2.

Figs. 4–14 show various sections of the forward part of my top capping along the sections **4—14** of Fig. 3.

Fig. 15 shows a section of die No. 2 along line **15—15** of Fig. 3 for the forming of the outside flange along the longitudinal edges of the stainless steel blank during the initial operation of die No. 2.

Fig. 16 shows the section of die No. 2 along the line **16—16** of Fig. 3 for the forming of the wall around the depressed contoured area of my top capping.

Fig. 17 shows the section of die No. 2 along line **17—17** of Fig. 3 for the forming of depressed flanges around the openings for the sinks.

Fig. 18 shows the section of die No. 2 along line **18—18** of Fig. 3 for forming the ridges around certain openings in my top capping.

Fig. 19 is the plan view of the forward part of my top capping following the operation of trim die No. 3.

Figs. 20–27 show various sections of the forward part of my top capping along the sections **20—27** of Fig. 19 after the operation of flanging die No. 4.

Fig. 28 is a section through trim die No. 3 along the line **28—28** of Fig. 19.

Fig. 29 is a section through flanging die No. 4 along the line **29—29** of Fig. 19.

Fig. 30 is the top plan view of the forward part of my top capping following the operation of flanging die No. 4, and the flanging down of the end flanges by the break die No. 5.

Figs. 31 and 32 are end views of Fig. 30 showing the end flanges.

Fig. 33 shows the curl formed on the rear edge of the forward part of the top capping.

Fig. 34 shows a section along line **34—34** of Fig. 30 of die No. 6.

Fig. 35 is a section along line **34—34** of Fig. 30 showing the upwardly and forwardly inclined rear flange as formed by die No. 7.

Fig. 36 is a section through die No. 7 along the line **36—36** of Fig. 30.

Fig. 37 is a section through die No. 8 along the line **37—37** of Fig. 30 showing the forming of the rounded front flange of my top capping.

Figs. 38–41 show the operations in forming the top rear panel for my top capping.

Figs. 42–44 show the die operations in forming the top rear panel.

Figs. 45–51 show the operations in forming the side rear panels for my top capping.

Fig. 52 is a detail of the welding operation connecting in the rear side panels.

Fig. 53 is an isometric outline showing the assembly of the various parts to form my top capping.

In forming the very large stainless steel top capping for a soda fountain cabinet, I have found that such a top capping can be formed of stainless steel by the following process:

A sheet **1** of stainless steel, shown in Fig. 1, is first blanked out in blanking die No. 1 to the proper size and to form holes **2**, **3**, and **4** for the entrance to the various accommodations in the interior of the cabinet as shown in Fig. 2. In the particular form shown, holes **2** are for the sinks, hole **3** is for the opening into the refrigerated compartment for milk and other bottles, and hole **4**, also leading into the refrigerated compartment, is to receive several jars for crushed fruit. The small hole **5**, for the refuse, and the small hole **6**, for the container for running water in which the ice cream dipper is placed to keep it warm, are not blanked out in this operation. Other accommodations could be substituted for the ones outlined above, such as substituting compartments for ice cream for the bottle compartmnt.

I have found that in stamping out the large stainless steel blanks by die No. 1 that it is necessary to allow a liberal amount of metal as indicated by the area **7**, around all the holes blanked out, as shown in Fig. 2, wherein the desired ultimate hole size is indicated by the dotted lines **8**. This metal not only forms the desired flanges, which will be described later, but allows the feeding of sufficient metal into the drawing operation under the controlled conditions, to be described later, to permit the forming of the desired contours and still form the large, flat, unwrinkled top surface desired.

In the next operation, performed by die No. 2, a pressure pad is fitted under the entire surface of the area **9**, which comprises the area between the lines **10—10′**, as shown as dot and dash in Fig. 2, the ends **32** and the dot and dash lines **9′** along the longitudinal edges of blank I. The lower stationary die member covers the area surrounded by the dot and dash line **10—10′**, as shown in Fig. 2, and is surrounded by the pressure pad. The upper descending die member of die No. 2 is designed to cover the entire area of blank **1**. An upward pressure is placed on the pressure pad to yieldingly clamp the blank **1** against the upper descending die member prior to any mating of the upper descending die member with the lower fixed die member of die No. 2. This pressure on the pressure pad may be produced by air or fluid pressure as from air or hydraulic cylinders or by springs or any combination thereof to hold the pressure pad against the upper descending die member during the mating of the upper and lower die members. I have found that a pressure of about **100** pounds per square inch on this pressure pad keeps the area **9** flat while the metal is being drawn under the conditions described below.

In making the die No. 2 for this second operation for my top capping, the line **10—10′** is the top of a depression or wall **11—11′**, which is formed in the top capping, see Figs. 4–14. This depression extends entirely around the top surface of the top capping even though the rear depression **11′** is to be utilized in subsequent operations as will be described later. Also the die No. 2 is so formed that as the upper die member is forced down into mating position ridges **12** and **13** are formed. Around the sink openings **2** there are formed the depressed flanges **17**. Also the ridges **14** and **15** are formed around holes **5** and **6**, which were not blanked out in the previous operation. In this die operation, in order to obtain a perfectly flat surface, or area **19**, I have found it necessary to offer a much greater resistance to the flow of metal from the longitudinal edges **32′**, Fig. 2, than from the sides **32** even in the early stages of the drawing operation. To accomplish this the first operation of the descending upper die member **20**, Fig. 15, is to turn up flanges **16**, Figs. 3–14, on blank **1** along the dot and dash lines **9′** of Fig. 2. It will be noted that the die is arranged so that the top capping is formed in the inverted position. Flange **16** is formed around the rounded corner **16′** of pressure pad **21** as the upper die member **20** descends. The resistance to the flow of the metal into the drawing operation from the edges **32′**, as drawn around corner **16′**, is in addition to the resistance to the metal flow due to the friction caused by the pressure pad **21** clamping blank **1** against the upper die member **20**. This combined resistance serves to maintain the central portion of depressed area of blank **1** under high tensile stress even in the early stages of the drawing operation. This drawing of the flat surfaces in said depressed area without wrinkles is of utmost importance in stainless steel on account of its very high tensile strength and elasticity. Small wrinkles formed in the flat surfaces will not be pressed out on the mating of the flat surfaces of the die members, but the stainless steel sheet will compress, due to its elasticity, and the wrinkles will re-form as soon as the pressure is removed. With the highly reflective surfaces of stainless steel such wrinkles, if formed, detract substantially from the artistic effect of the product.

Further, I have found that it is desirable to place the flat area **19** under increasing tension as the die members approach their mating position. This is shown in Figs. 16–18. Fig. 16 is a cross section of die No. 2 along line **16—16** of Fig. 3 and shows the forming of the depression **11′** inside of the line **10′** of Fig. 2. In Fig. 16 the upper die member **20** is shown as having moved downward from the position shown in Fig. 15 and approaching the mating position with the lower die member **22**. The sheet metal of area **9** is shown as yieldably pressed against upper die member **20** by the pressure pad **21**. As the metal passes into the draw it must pass around corner **23** of the upper die member and corner **24** of the lower die member, which not only increases the tension in the flat surface **19** as the die members approach the mating position, but serves to avoid wrinkles that may start to form, particularly at the corners **25**, Fig. 3. This resistance to the flow of metal into the draw to form the flat surface **19** is in increasing amount as the die members move from the position shown in Fig. 15 to the position shown in Fig. 16. The section shown in Fig. 16 along line **10′** is substantially the same as the sections along line **10** at the front and sides of the top capping and the same increase in resistance to the flow of metal into the draw operation takes place around the entire depressed area of the top capping.

This same action takes place around the sink openings **2**, as shown in Fig. 17, which is a cross section of the die along line **17—17** of Fig. 3. Here the metal from the depressed flange **17** is drawn around corner **26** and corner **27** of the lower and upper die members, which not only serves to produce greater and greater tension in flat surface **19** as the dies approach the mating position, but serves to iron out any wrinkles that may start to form around the corners **28**, Fig. 3.

The ridges **12** and **13** and depressed flanges **18** around the openings **3** and **4** serve the same purpose, as shown in Fig. 18, which is a section of the die along line **18—18** of Fig. 3. Here the metal from the area **7** is drawn around corners **29** and **30** and over the hump of the ridge **12**, the ridge selected to illustrate the principle of operation. As in the above for Figs. 16 and 17, these corners **29** and **30** and the ridge **12** not only serve to increase the tension in the flat surface **19** as the dies approach the mating position, but serve to iron out any wrinkles that may start to form around corners **31**, Fig. 3. The same action takes place in the ridge **13** and depressed flange **18** formed around hole **4**.

By this method of providing an ever increasing tension in the flat surface **19** of my top capping as the die members approach their mating position and providing the lateral resistance to the flow of metal by the longitudinal flanges **16** in addition to the pressure pad **21**, I have found that I can draw the flat surface **19** of the large area required for such a top capping of a soda fountain and provide the desired contours without wrinkles in said flat surface so as to provide a very pleasing and artistic product which has met wide acceptance in the trade.

With respect to the ridges **14** and **15** around small holes **5** and **6** I have found that it is not necessary to blank out these holes and the ridges are pressed similar to ridge **12** in Fig. 18. As shown in Fig. 5, the metal inside the ridges is not depressed below the level of the flat surface **19**.

A feature of this operation is the forming of the slop-

ing depressed ribbed drainboard **70**. This is formed during the final movement of the upper die member **20** into mating position with the lower die member **21**. As a result of the retarding action to the flow of metal from the outside edges **32'** into the drawing operation as described above and the other restrictions to the flow of said metal from said edges and openings, the formation of this drainboard **70** is substantially an operation wherein the metal in the drainboard is actually drawn or stretched to a reduced diameter to provide the metal area sufficient to form the depressed ribbed area of the drainboard **70**.

The next operation is to square trim the outside edges including the cutting off of flanges **16** and the trimming of the edges around the flanges **17** on the inside of holes **2** and flanges **18** on the inside of holes **3** and **4**, forming flanges **17'** and **18'** shown in Fig. 19. At the same time small holes **5** and **6** are trimmed so that the holes are surrounded by ridges **14** and **15**, as shown in Fig. 20. This trim operation is performed with die No. 3 and is shown in Fig. 28 which shows by way of example the trimming of flange **18** around the refrigerated compartment **3**.

Figure 28 is a cross section of the die along line **28—28** of Fig. 19, and the upper die member **38** descending on the lower fixed die member **39** on which has been placed the top capping stamping produced by the preceding die operation as described above. As the upper die member **38** descends the cutting edge **41** trims flange **18**, as shown in Fig. 3, to form a uniform flange **18'** around the hole as shown in Fig. 19. The lower die member **39** is cut out at **39'** so that the cut away scrap, indicated as **18''** in Fig. 28, is permitted to drop through the die and be removed from below. The trimming of the outside edges, including flanges **16**, the other openings **2** and **4**, and the cutting out of holes **5** and **6** is performed in the same manner as is shown and described in Fig. 28. In this operation the two ends are also notched out at **42** and **43**, as shown in Fig. 19, wherein the forward notches **43** have the arcuate curves **58**, the purpose of which will be described later. In this same operation, holes **44**, **45** and **46** are also punched to provide openings for the pipes to supply hot and cold water for the sinks **2** and water to the hole **6** for the ice cream dipper.

The next operation is a flanging operation wherein flanges **17'** and **18'** around openings **2**, **3** and **4** are turned down to form flanges **47** around the sink openings **2** and flanges **48** and **49** around openings **3** and **4** as shown in Figs. 22, 24, 26 and 27. Figs. 20–27 are taken along sections **20–27** in Fig. 19, but show these sections following this flanging operation. This flanging operation is performed with die No. 4, as shown in Fig. 29, which shows, by way of example, the forming of downward projecting flanges **47** on each side of the partition **35** between the two sink openings. As the upper die member **50** descends on the lower die member **51** the rounded edges **52** draw flanges **17'**, shown dotted, downward around the upwardly projecting part **53** of the lower die member **51** to form flanges **47**. Upwardly projecting part **53** of the lower die member **51** and the corresponding mating surface on the upper die member **50** are so formed that the partition **35** is rounded as shown in Fig. 29 and is depressed as shown in Figs. 23 and 53. This prevents splashing of the water as the swiveled faucet, connected to the hot and cold water pipes through openings **44** and **45**, is turned to run water into either of the two sinks without the operator turning off the flow of water to the swiveled faucet.

In this same flanging operation a flange **54** is turned down along the rear edge and a slight curl **55** is formed along the front edge as shown in Figs. 20–27. Also a slight curl similar to curl **55** is formed along edges **56**. Fig. 19, of projecting tabs **57** formed by notches **42** and **43**. The purpose of these curls will be explained later.

The next operation is to flange over the projecting tabs **57** to form the downturned flanges **57'**, Figs. 32–33. This is performed on a break die No. 5, in the manner well known in the art. This involves two strokes, one for each end. The die, however, is made to flange the ends of two top cappings at the same time.

The next operation is to transform flange **54**, Figs. 20–27, 30–32, into a curl **54'**, shown in Fig. 33. This operation is performed by die No. 6, as shown in Fig. 34, where the top capping is placed in the lower die member **59** so that flange **54**, shown dotted, rests on a shelf **59'** and is positioned by a stop **59''**. As the upper die member **60** descends and the tongue **61**, formed thereon, approaches its mating position, as shown, flange **54** is wrapped around the upper face of the tongue to form the curl **54'**. As the upper die member **60** reaches its raised position on the up stroke the curl **54'** (shown dotted) is unhooked from tongue **61** (shown dotted) and the top capping removed from the die. This curl, **54'**, forms the lower rest for the syrup pumps **110** and the fruit jars **111**, as shown in Fig. 53.

The next operation is to bend up area **62'**, Figs. 30–32, to form the upwardly and forwardly inclined flange **62**, shown in Figs. 35 and 53. This is accomplished by die No. 7, Fig. 36, which shows a cross section of the die along line **36—36** of Fig. 30. With the upper die member **64** in the raised position, the lower die member **63** is so formed that the upward projection **66** fits into the rear depression **11'** of the top capping and ridge **13** of the top capping fits into depression **13'** in the upper face of the lower die member, as shown for the section illustrated. At all other locations along the top capping the upper face of the lower die member **63** is similarly formed so as to follow the contours of the top capping. When seated properly on the upper face of the lower die member the remainder of the top capping is supported by the supporting frame **65** attached to the lower stationary die member **63**. Mounted on this frame **65** is the stop **67** to aid in rapidly positioning the top capping on the upper face of the lower die member **63**. As the upper die member **64**, which is correspondingly contoured, descends the rounded flanging portion **68** turns down the rearward portion of the top capping, shown as **62'** in Figs. 30–33, and as dotted in Fig. 36, to form the rear upwardly and forwardly inclined flange **62**, Figs. 35, 36 and 53. I have found that a very desirable feature in die No. 7 is to contour the upper and lower die members so that the depressions **11** along the sides of the top capping gradually merges into the curve formed by the upward projection **66** of the lower die member in the forming of this upwardly and forwardly inclined flange, as shown at **69**, Fig. 53. The merging of depressions **11** along the sides of the top capping gradually into the curve formed around projection **66** of lower die member **63** prevents the splitting of the metal at these corners in this flanging and forming operation.

The next operation is to curve flange the front area **9** of the top capping to conform with the curve **58** of the side flanges **57'**, Figs. 31–33 and 53. This operation is performed by die No. 8, shown in Fig. 37, which is a cross section of the die along the line **37—37** of Fig. 30. In this figure there is shown the lower die member **71** and the upper die member **72**. The top capping is placed on the lower die member so that the depression **11** fits against the ridge **73** formed on top of the lower die member **71**. The outwardly extending portion of the top capping is supported by frame **74**, the same as frame **65** in Fig. 36. As the upper die member **72** descends to curve the front area **9** to form rounded flange **75**, the rearward portion of die member **72**, indicated as **76**, mates with abutting face **77** of lower die member **71** so as to prevent any yield of upper die member **72** in the right hand direction. As the die members fully mate the clearance between the upper die member **72** and the lower die member **71** is such that rounded flange **75** is put under a high compressive strain to set the rounded flange **75** and prevent the high elastic properties of stainless steel from causing the flange to spring back. In the forming of such flanges a certain amount of spring back is to be expected and compensated for in the curvature of the mating die faces.

Further, due to the high tensile strength and elasticity of stainless steel, it has been found that the curvature of the die forming the rounded flange **75** should also be varied along the length of the flange, that is the curve should be along a sharper curvature as indicated in dotted lines at **75'** along the center line, shown as **25–25**, Fig. 19, than along the edges as shown in solid lines in Fig. 37, showing a section along **37—37** in Fig. 30. Upon completion of this die operation the spring back produces a uniform curvature for the rounded downwardly inclined flange **75** along the entire front edge of the top capping.

An important feature of the rounded flange **75** is the more sharply inturned portion or curl **55**. As mentioned above in reference to Figs. 20–27 this is formed in die

No. 4. The purpose of this short inturned portion is to press against the front face **79** of the soda fountain cabinet, Fig. 53, and maintain a tight seam shown at **80**. The same applied to the slight curl formed on the edge **56** of the downturned flange **57'** as mentioned above in describing the operation of die No. 4.

The top capping unit is formed of five pieces, the forward part described above, a rear top panel indicated as **81**, Fig. 53, and two side panels **82**, and a rear panel, not shown, which is bolted on rear flanges formed on the rear panel **81** and the side panels **82** as described later.

The rear top panel is formed as shown in Figs. 38–44. The stainless sheet **83** is first drilled for bolt holes as shown in Fig. 38. The holes **84** are for fastening on the rear panel and the holes **85** are for fastening in the draft head, drain station **86**, Fig. 53.

This sheet **83** is then subjected to three flanging operations as shown in Figs. 39–41. These operations are performed, as shown in Figs. 42–44, by the upper and lower die members **89** and **88**, where the first operation, Fig. 42, forms the flange **90**, Fig. 39, the second operation the flange **91**, Fig. 40, and the third operation the flange **92**, Fig. 41. It will be noted that the upper die member **89** is so formed that the point **93** permits a clearance **94** to be present in all operations. This permits the flange angle to be governed by the termination of the downward stroke of the upper die member **89** and all three operations can be performed by the same dies. As shown in Fig. 41, holes **84** are in flange **92** and holes **85** are in flange **91**.

The side panels **82** are formed as shown in Figs. 45–51. The irregular shaped blanks **82'** are first blanked out as shown in Fig. 45 to form the two complementary blanks **82'** for the end pieces **82**. In Fig. 46 the curve **95** corresponds to the curve of the upwardly and forwardly flange **62**, Fig. 53. Edge **96** mates with flange **57'** at line **97**. Projection **98** of blank **82'** is first flanged at **100**, Figs. 47 and 48, and flange **100** is then flanged over to form flange **99** to provide a downturned flange along the sides of the opening for the syrup pumps **110** or the fruit jars **111**, Figs. 49 and 53. Flange **100** bridges the area between the curl **54'** on the upwardly and forwardly flange **62** and the rear top panel **81** as shown in Figs. 52 and 53. The rear edge of this panel is also flanged at **101**, Figs. 50 and 51, and provided with bolt holes **102** for connecting on the rear panel. These flanging operations are all performed with a break die as is well known in the art.

In assembling, the forward part of the top capping, the rear top panel **81** and the side panels **82** are mounted in a fixture and the joints **95**, **97**, **102**, **103** and **104**, Figs. 52 and 53, are welded. At the same time the joints **38** between flange **57'** and the forward rounded flange **75** are welded and the back panel bolted in place. I have found that in welding joints **102** and **103**, Fig. 52, that the curl **54'** and flanges **91** and **90** perform a very desirable function, inasmuch as they provide additional heat dissipating means and permit the welding of joints **102** and **103** without the buckling of the flat area of flange **100** and of the rear top panel **81**. Thus curl **54'** and flanges **91** and **90** perform the functions of supporting the syrup pumps **110** and the fruit jars **111** and form the supporting and fastening means for the draft head and drain assembly **86** in the top capping assembly.

Having described the manufacture of my top capping, it can be seen that the welding operations just described are the only welding operations required to form my top capping assembly unit which is rigid and does not require a supporting metal or wood frame as in the prior art top cappings. It may also be stated that this is the only one-piece type top capping used in soda water fountains known today.

What I claim is:

The method of forming an elongated flat sheet of stainless steel to make a soda-fountain top capping having a central depressed area provided with openings therein comprising the steps of first blanking openings in the sheet metal, each opening being of less area than the ultimate intended area thereof, so as to leave excess metal around the openings, then forming a portion of the metal including said openings in a drawing operation between contoured die members to provide a central depressed area and simultaneously forming flanges around at least certain of said openings, excess metal around said openings feeding outwardly into the sheet during the drawing operation and the simultaneous formation of said depressed area and said flanges tensioning the flat surface of the depressed area to maintain the same relatively free from wrinkles, then trimming excess metal from said opening flanges and flanging down the trimmed flanges, forming a flange along a longitudinal edge of said sheet and subsequently turning back said last-mentioned flange in an independent operation to form a curl along the mentioned longitudinal edge of the sheet, and then flanging the longitudinal marginal portion of the sheet containing said curl to provide a flange along and coincident with the adjacent edge of said depressed area whereby said last-mentioned flange terminates at its top in said curl.

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