Feb. 19, 1929. 1,703,042

H. E. KONDOLF

FOLDING BLANK BOX

Filed March 22, 1923 6 Sheets-Sheet 1

Fig. 1.

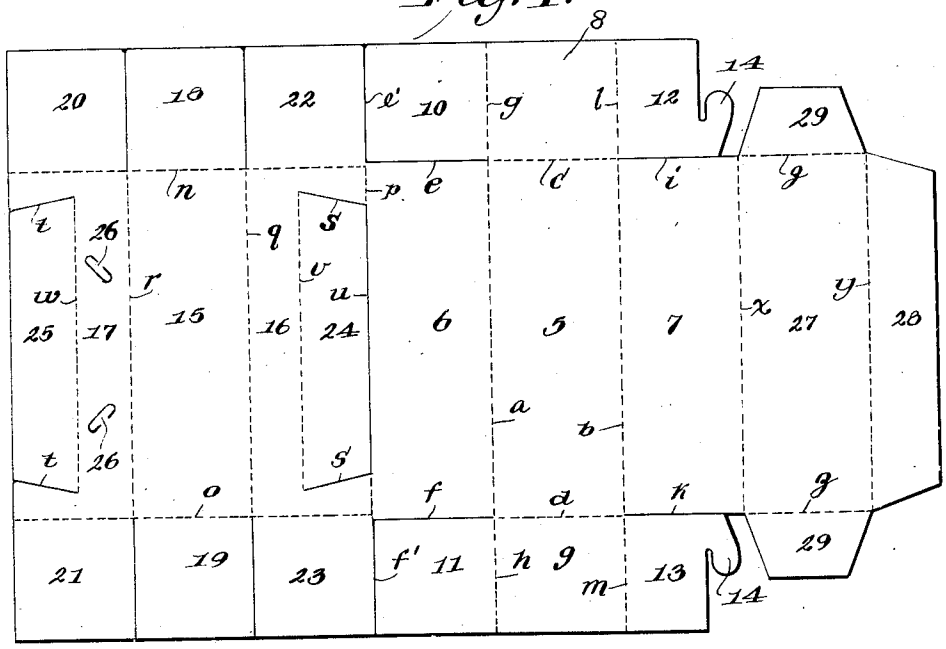
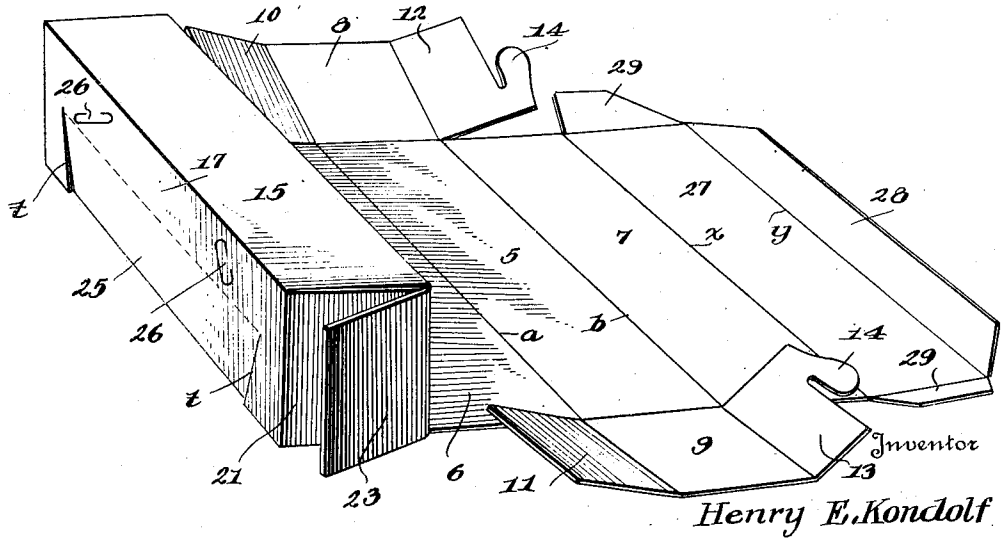


Fig. 2.



Inventor

Henry E. Kondolf

By

Dorsey & Cole

Attorney

Feb. 19, 1929. 1,703,042

H. E. KONDOLF

FOLDING BLANK BOX

Filed March 22, 1923 6 Sheets-Sheet 2

Fig. 3.

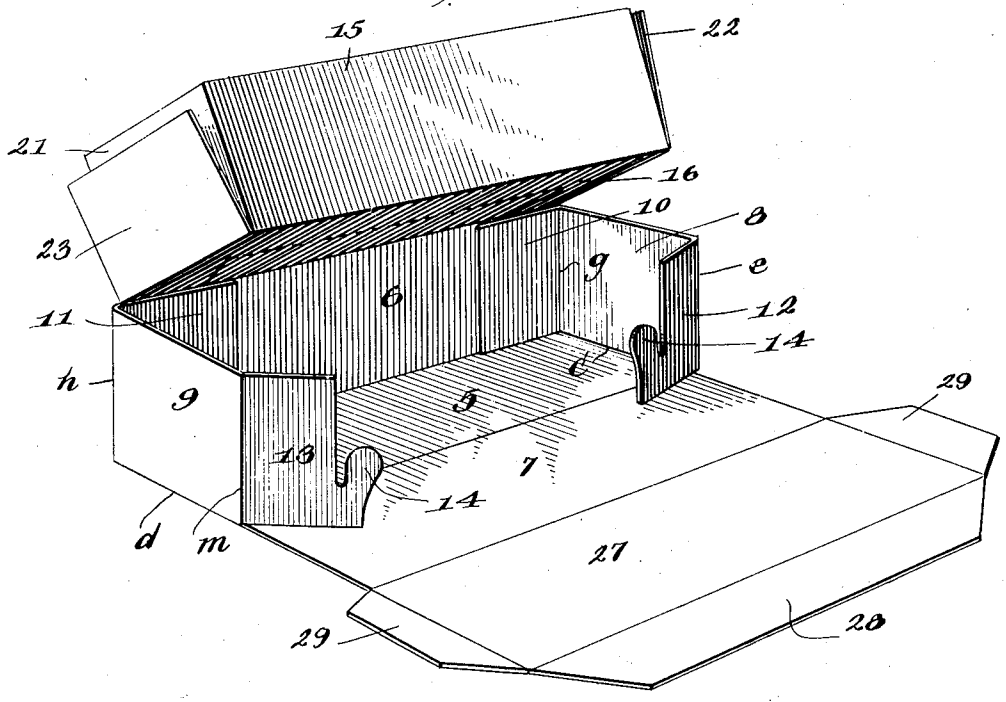
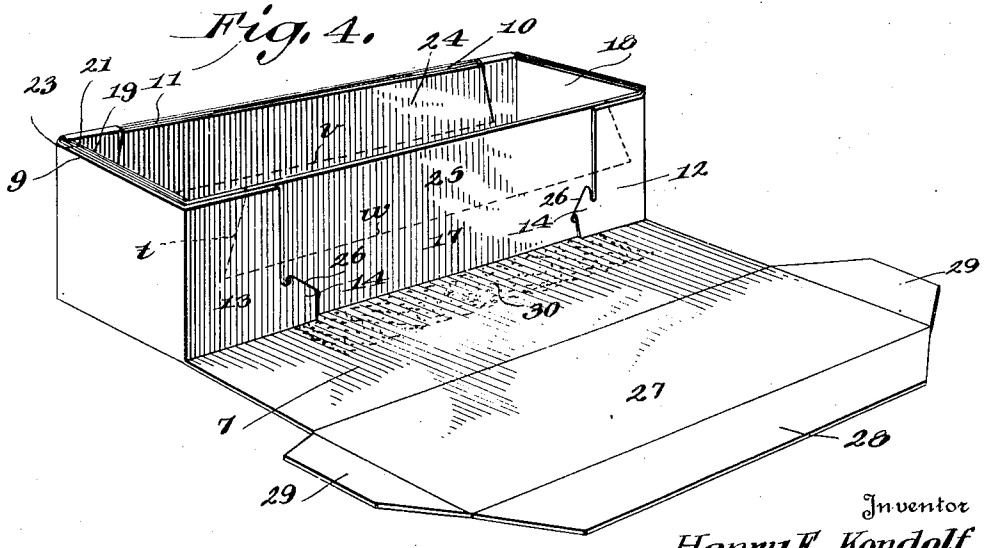


Fig. 4.



Inventor

Henry E. Kondolf

By

Dorsey & Cole

Attorney

Feb. 19, 1929. 1,703,042

H. E. KONDOLF

FOLDING BLANK BOX

Filed March 22, 1923 6 Sheets-Sheet 3

Fig. 5.

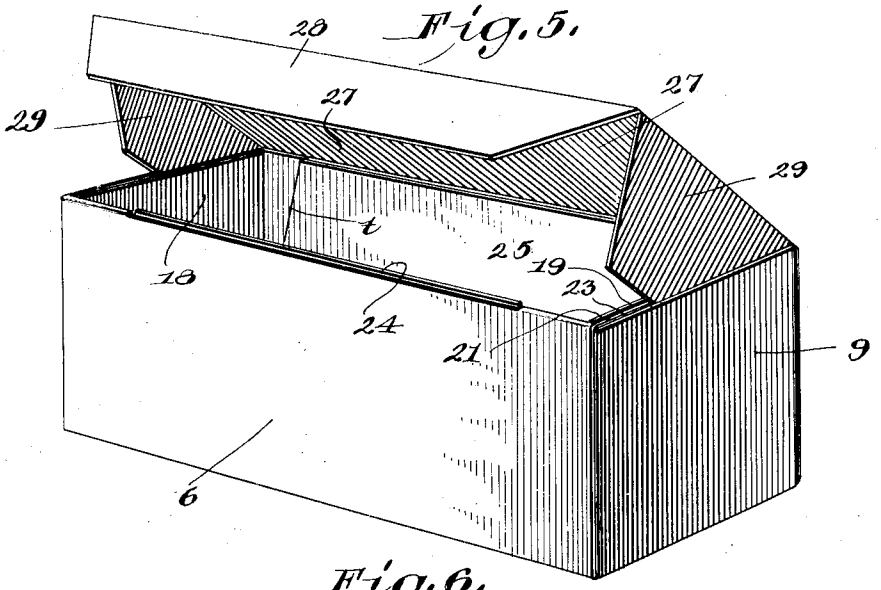


Fig. 6.

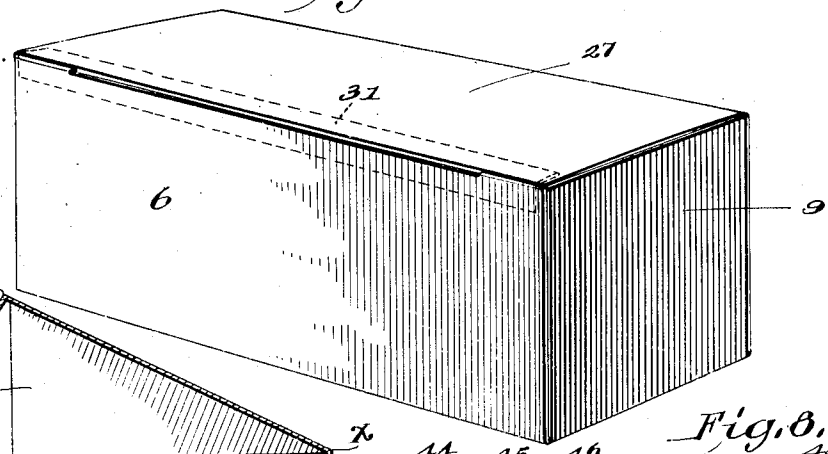


Fig. 7.

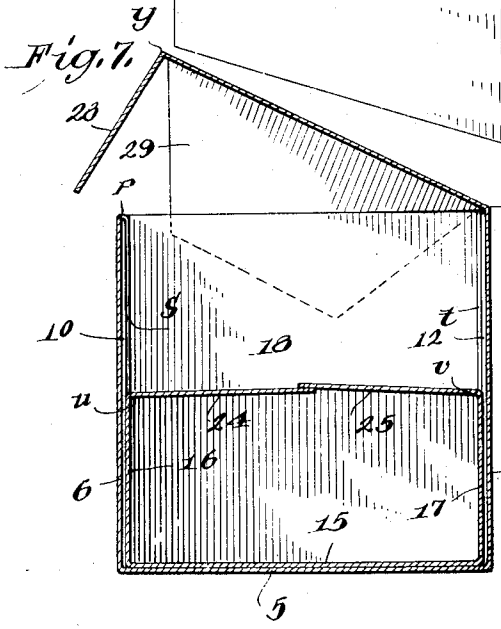
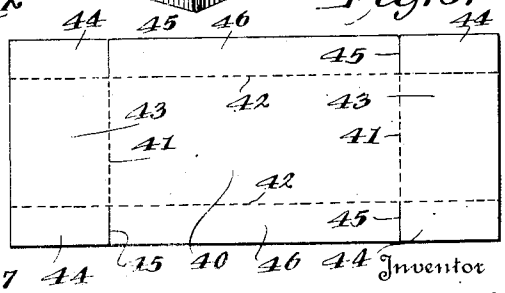


Fig. 8.



Inventor

Henry E. Kondolf

By

Dorsey & Colby

Attorney

Feb. 19, 1929. 1,703,042

H. E. KONDOLF

FOLDING BLANK BOX

Filed March 22, 1923 6 Sheets-Sheet 4

Fig. 9.

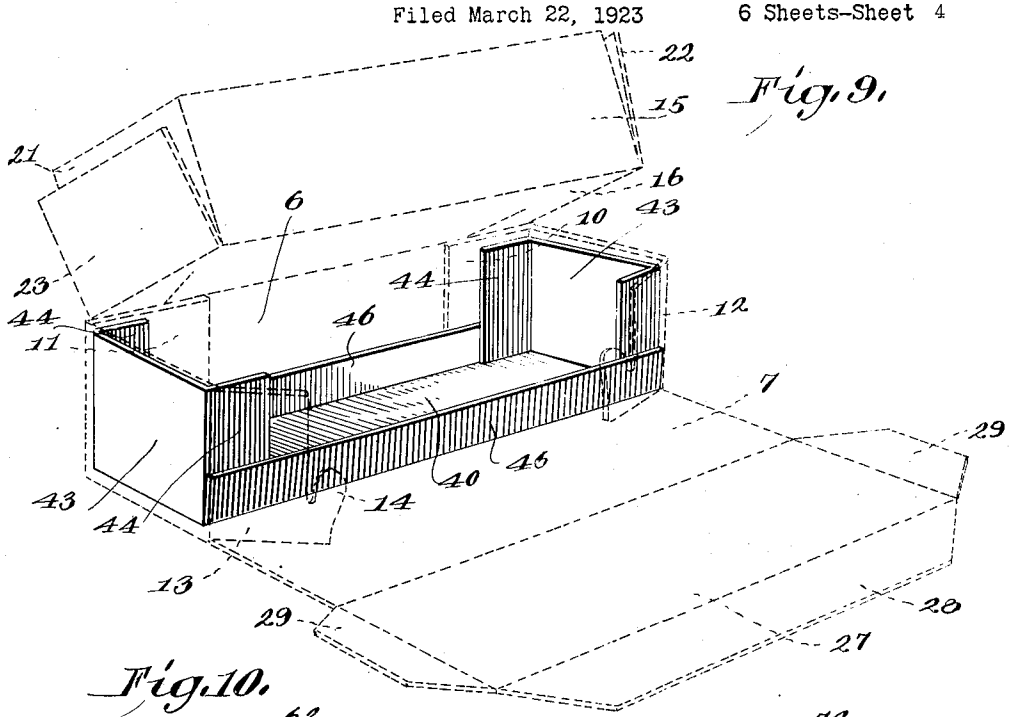
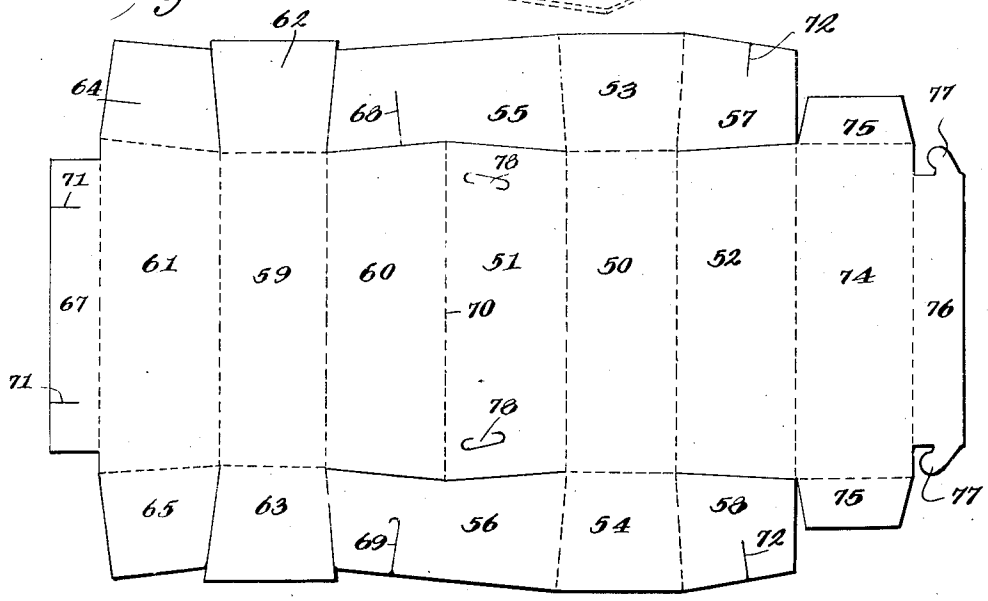


Fig. 10.



Inventor
Henry E. Kondolf

By Morsey & Cole
Attorney

Feb. 19, 1929. 1,703,042

H. E. KONDOLF

FOLDING BLANK BOX

Filed March 22, 1923 6 Sheets-Sheet 5

Fig. 11.

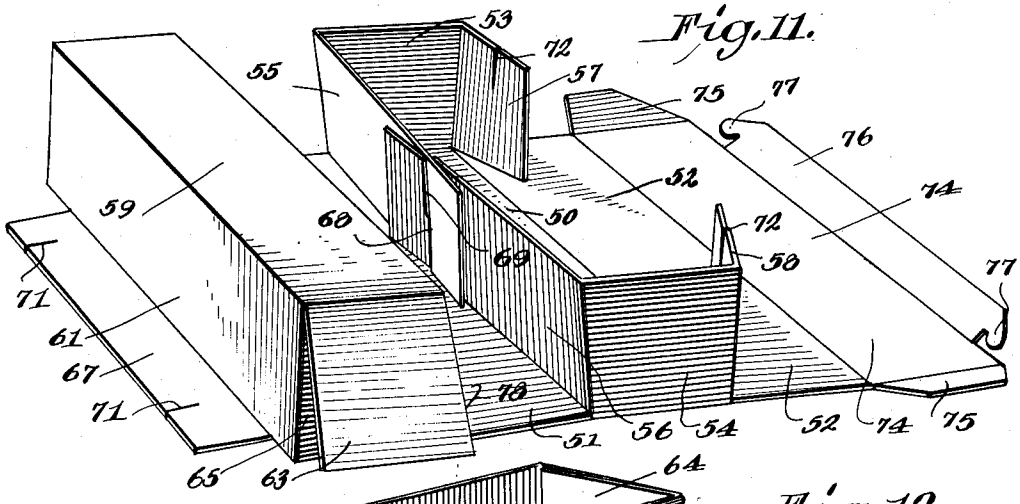


Fig. 12.

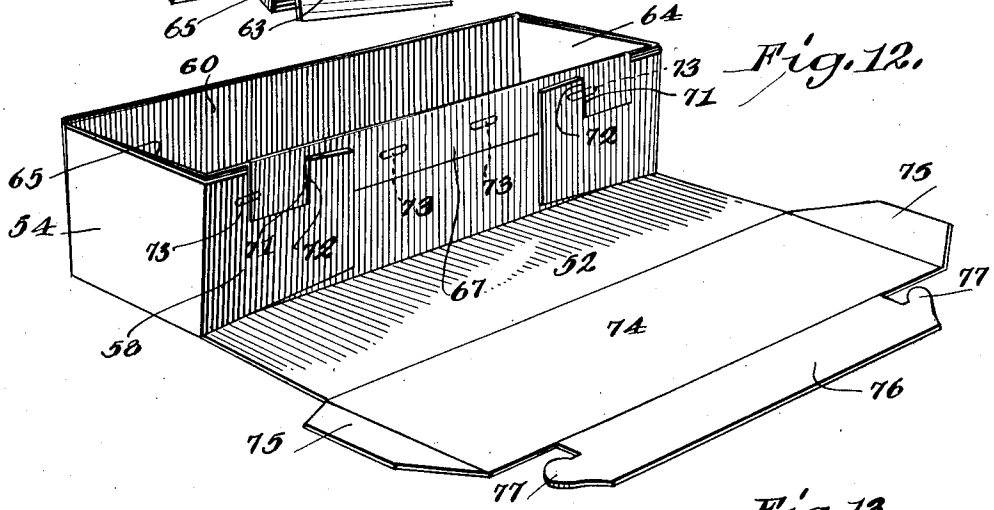
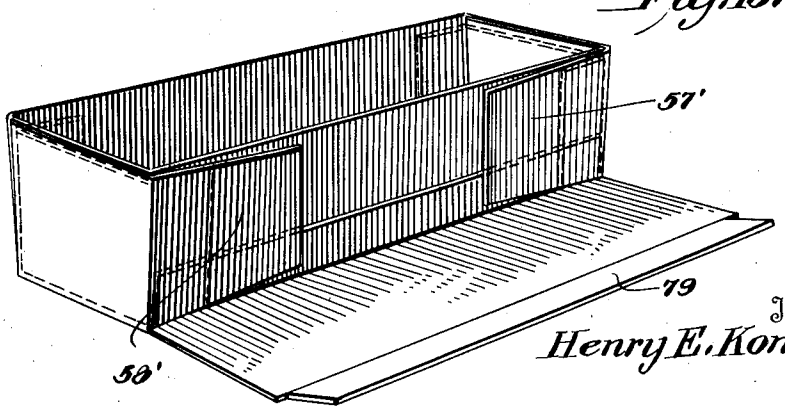


Fig. 13.



Inventor
Henry E. Kondolf

By Mowry & Cole
Attorney

Feb. 19, 1929. 1,703,042

H. E. KONDOLF

FOLDING BLANK BOX

Filed March 22, 1923 6 Sheets-Sheet 6

Fig. 14.

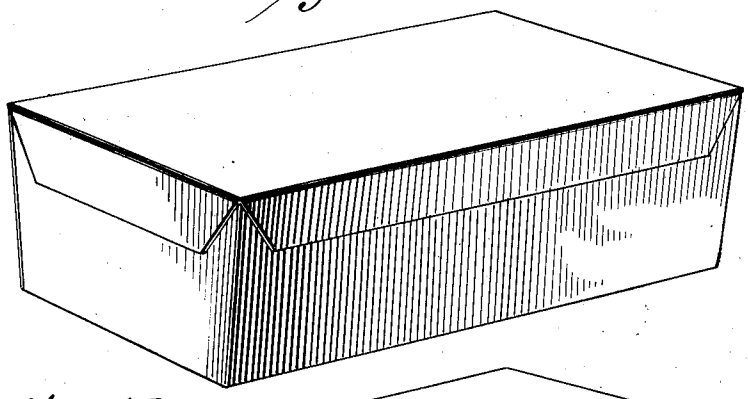


Fig. 15.

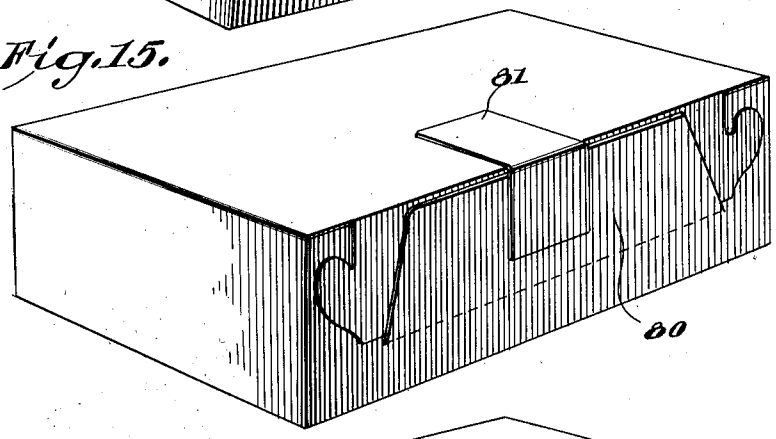
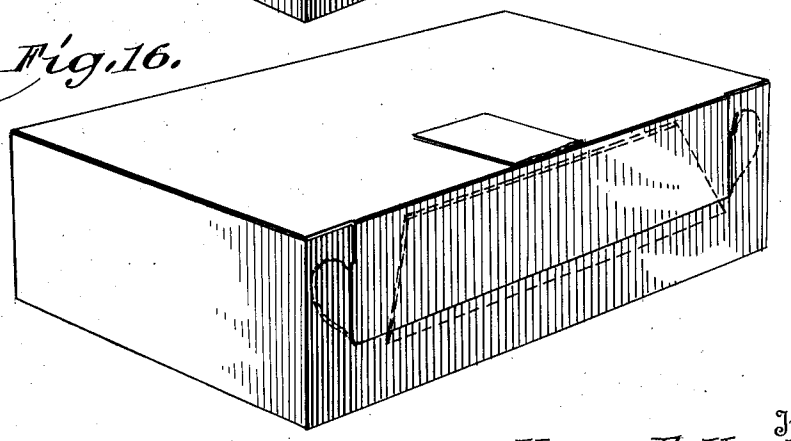


Fig. 16.



Inventor
Henry E. Kondolf

By Mosey & Cole
Attorney

Patented Feb. 19, 1929. 1,703,042

UNITED STATES PATENT OFFICE.

HENRY EDWARD KONDOLF, OF NEW YORK, N. Y.

FOLDING BLANK BOX.

Application filed March 22, 1923. Serial No. 626,788.

This invention is an improvement in folding blank boxes, and one of the principal objects thereof is to provide a blank which may be made from a minimum amount of material, and which is so cut and scored that one side thereof may be impregnated with water-proofing material, and the box then may be formed by folding the blank, and when so formed will present the water-proofed surfaces of the blank on all exposed interior and exterior surfaces of the box-body.

Another object of the invention is to provide a box, which may be formed from a blank and which will be water-proof, strong and durable, and capable of being formed quickly and securely.

Another object of the invention is to provide a tapered box, that is, one in which the lateral faces taper downwardly, and to provide a blank, made from a minimum amount of material, and from which the tapered box may be formed.

A further object is to provide for reinforcing a box made in accordance with my invention, so that such box may, when used as a shipping container, comply with the railroad requirements as to strength and thickness of walls.

Other objects of the invention will appear as the description proceeds.

In the drawings which form a part of the application—

Figure 1 represent a plan view of the blank from which a rectangular box is to be formed.

Figure 2 represents a perspective view, showing the rectangular box in partially formed condition.

Figure 3 represents a perspective view, showing a further development in the formation of the box.

Figure 4 represents a perspective view, showing a still further step in the formation of the box.

Figure 5 represents a perspective view of the rectangular box completely formed, except as to the final position of the top.

Figure 6 represents a perspective view of the completed box.

Figure 7 represents a transverse sectional view through the box, showing the position assumed by the partition pieces when the latter are used.

Figure 8 represents a plan view of the reinforcing blank which may be used to strengthen the rectangular type of box.

Figure 9 is a view similar to Figure 3, showing the method of folding up the reinforcing blank during the process of forming the rectangular box.

Figure 10 represents a plan view of the blank from which the tapered box is formed.

Figure 11 represents a view in perspective, showing the tapered box partially formed.

Figure 12 represents a perspective view showing a further development in the formation of the tapered box.

Figure 13 represents a perspective view of a shipping container, much reduced for illustration, made in accordance with my invention.

Figure 14 represents a perspective view of the shipping container shown in Figure 13, with its top in place.

Figure 15 represents a view in perspective of a box made in accordance with my invention, showing a means of sealing the box for shipment.

Figure 16 represents a similar view showing the box with the seal broken, and with the box-lid locked in closed position.

The blank illustrated in Figure 1, may be described for clearness of understanding, as composing three units, viz, a middle section (from which the outer box is formed); a complementary section (from which the inner box is formed); and an end section (from which the top is formed).

The middle section is scored and cut to form a bottom outside wall 5, front outside wall 6, rear outside wall 7, outside end wall 8, outside end wall 9, intermediate front wall flaps 10, 11, respectively, and intermediate rear wall flaps 12 and 13, respectively.

The front and rear outside walls 6 and 7 are connected to the bottom outside wall 5 along the scores *a* and *b*, respectively. The outside end walls 8 and 9 are connected to the ends of the bottom outside wall along the scores *c* and *d*, respectively. The intermediate front wall flaps 10 and 11 are separated from the front outside wall by the cuts *e* and *f*, respectively, and are connected to the respective outside end walls 8 and 9 along the scores *g* and *h*. The flaps 10 and 11, are also separated from the complementary blank section (to be described) by right angular continuations of the cuts *e* and *f*, indicated respectively at *e'* and *f'*. The inter-

mediate rear wall flaps 12 and 13 are separated from the rear outside wall 7, by the cuts *i* and *k*, and are connected to the respective outside end walls 8 and 9, (in opposite relation to the flaps 10 and 11) along the scores *l* and *m*. Locking ears 14 are formed on the free lateral edges of the intermediate rear wall flaps near the cut edges *i* and *k*.

The complementary section from which the inner box is formed, is cut and scored to form a bottom inside wall 15, a front inside wall 16, a rear inside wall 17, inside end walls 18 and 19, respectively, and intermediate end walls 20, 21, 22, and 23, respectively.

The inside end wall 18 and the intermediate end walls 20 and 22 which flank it at one end of the complementary blank section, are separated from each other by cuts, and the inside end wall 19, and the intermediate end walls 21 and 23 which flank it, at the opposite end of the complementary blank section, are likewise separated by cuts. The score *n* which extends transversely across the complementary blank section and along which the end walls 20, 18, and 22, are connected to the complementary section of the blank, is off-set inwardly from the score *c* a distance substantially equal to the combined thickness of the end walls 20, 18 and 22, so that when these end walls are arranged in overlapping relation, in the formation of the inside box, as will presently appear, the outer surface of the end wall of the inside box thus formed will be substantially flush with the inner surface of the outside end wall 8. Likewise the transverse score *o*, along which the end walls of the inside box 21, 19 and 23 are connected to the complementary section of the blank is off-set inwardly from the score *d*, a distance substantially equal to the combined thickness of the end walls 21, 19 and 23. The front inside wall 16 is connected with the front outside wall 6 along the score *p*, and at its opposite edge is connected with the bottom inside wall 15 along the score *q*. The rear inside wall 17 is connected to the opposite edge of the bottom inside wall 15 along the score *r*.

Partition flaps, which may be utilized if desired to form a horizontal partition in the completed box, are carried one by the front inside wall 16 and the other by the rear inside wall 17. These partition flaps 24 and 25, respectively, are each formed by slitting the front inside and rear inside walls, respectively, from their outer edges, as shown in the blank (which outer edges become the upper edges of the front inside wall and rear inside wall in the completed box). The slits which define the ends of the partition flap 24 are indicated at *s*, and the slits which define the ends of the partition flap 25 are indicated at *t*. The slits *s* diverge from each other toward the medial line of the front inside wall 16, and the slits *t* diverge from each other toward the medial line of the inside rear wall 17. The slits *s* at their outer end, are connected by a slit or cut *u* which extends along the score *p*, so that the partition flap 24 is thus separated from the front outside wall 6. The inner edge of the partition flap 24 is connected with the front inside wall 16 along the score *v*, and the inner edge of the partition flap 25 is connected to the rear inside wall 17 along the score *w*. Diagonally arranged notches 26 in the rear inside wall 17 are adapted to be engaged with the locking ears 14, in forming the box, and these notches are arranged a distance apart substantially equal to the distance between the ears 14 when the intermediate rear wall flaps 12 and 13 are folded into the position indicated in Figure 4.

The front inside wall 16, and the rear inside wall 17, are narrower than the front outside wall 6, and the rear outside wall 7, respectively, by a distance equal to the thickness of the bottom inside wall 15, so as to allow the bottom inside wall 15 to rest against the bottom outside wall 5 when the box is formed, without straining or bulging the front and rear inside walls 16 and 17, and without straining the score along which the front inside wall 16 is connected to the front outside wall 6, and the score along which the rear inside wall 17 is connected to the bottom inside wall 15. Also the bottom inside wall 15 is narrower than the bottom outside wall 5, by a distance equal to the combined thicknesses of the front outside wall 6, intermediate front wall flap 11, front inside wall 16, rear outside wall 7, intermediate rear wall flap 13, and rear inside wall 17, so as to allow the nesting of the inside box into the outside box without straining the outside walls 6 and 7, or the scores along which they are connected to the bottom outside wall 5.

The end section of the blank, from which the top is formed, is cut and scored to form a top or lid 27 which is connected to the rear outside wall 7 along the score *x*. A top front flap 28, which is of a width substantially equal to the width of the partition flap 25, is connected to the outer edge of top 27 along the score *y*. Top end flaps 29 are connected to the ends of the top along the scores *z*. The ends of the front flap 28 and end flaps 29 of the top are diagonally cut, to taper these flaps, as shown.

In forming the box, the inside box may be first formed, the outside box then formed, with the exception of its rear wall 7, the inside box then nested within the outside box, and locked to it by the ears 14, the rear outside wall 7 may then be brought up to complete the outside box, and the top may be then folded over to complete the box.

For clearness of understanding this proc-

ess of forming the box will be described in detail.

Beginning with the complementary section of the blank, the inside end walls 18 and 19 are folded downwardly. The rear inside wall 17 is then folded downwardly along the score *r*, to position the rear inside wall at right angles to the bottom inside wall 15. The intermediate end walls 20 and 21 are then folded inwardly against the inside end walls 18 and 19, along the portions of the scores *n* and *o*, which connect the intermediate end walls 20 and 21 with the rear inside wall 17. Then holding the intermediate end walls 21 and 19 and 20 and 18 together, the bottom inside wall 15 is simultaneously raised and moved inwardly toward the middle section of the blank, thus bending the front inside wall 16 upwardly along the score *p*, and simultaneously bending the bottom inside wall 15 downwardly along the score *q*, until the front inside wall 16 has assumed a position at right angles to the front outside wall 6, and to the bottom inside wall 15. The intermediate end walls 22 and 23 are then bent inwardly against the intermediate end walls 20 and 21, respectively, along the sections of the scores *n* and *o*, which connect the intermediate end walls 22 and 23 with the front inside wall 16. The inside section of the box is then formed, and is in the position indicated in Figure 2.

The formation of the outside box is then begun by bending upwardly the intermediate front wall flaps 10 and 11, and the intermediate rear wall flaps 12 and 13 along the scores *g*, *h*, *l* and *m*, respectively, and then bending up the outside end walls 8 and 9 along the scores *c* and *d*, respectively. Then the front outside wall 6 is brought up, together with the inside box, until the outside wall 6 is in right angular relation with the bottom outside wall 5. The box is then in the condition shown in Figure 3.

Next the inside box is turned downwardly to fit within the outside box, bending along the score *p*, and the ears 14 are then locked into the slits 26. The box is then in the condition shown in Figure 4.

With a brush, a strip of suitable paste or glue 30 is applied on the rear outside wall 7. The strip of paste or glue, beginning at the inner edge of this wall, is of a width substantially equal to the width of the rear inside wall 17, exclusive of the partition flap 25, and is of a length substantially equal to the length of the rear inside wall 17 exposed between the intermediate rear wall flaps 12 and 13.

The rear outside wall 7 may then be folded up against the rear inside wall 17, and the box substantially in the position shown in Figure 5 may be placed in a mold or frame for securing adherence of the rear wall 7 to the rear inside wall 17. When these walls have thus become attached together, the box, except for the securing of the top, is completed, and may be removed from the mold or frame and is then in condition to be filled and sealed.

The foregoing detailed description of the process of forming the box is made for clearness of understanding. Another method of folding the box may be pursued if found more desirable. According to it, the formation of the outside box is begun by bending upwardly the intermediate front wall flaps 10 and 11 along the scores *g* and *h*, and then bending up the outside end walls 8 and 9 along the scores *c* and *d*, respectively. Then the front outside wall 6 is brought up, together with the front inside wall 16 of the complementary section, and simultaneously, the intermediate end wall flaps 22 and 23 of the complementary section are bent downwardly along the scores *n* and *o*, respectively. Next, the front inside wall 16 of the complementary section, together with the intermediate end wall flaps 22 and 23, and the end walls 18 and 19 are turned downwardly, the inside wall 16 bending downwardly along the score *p*, and the bottom inside wall 15 bending upwardly along the score *q*, so that the intermediate end wall 16 will fold in against the intermediate front wall flaps 10 and 11, and the inside wall 15 will fold against the bottom outside wall 5. During this inward folding of the parts 16 and 15, the inside end walls 18 and 19 may be folded down along the scores *n* and *o*. Then the intermediate end wall flaps 20 and 21 are folded inwardly along scores *n* and *o*, and simultaneously the rear inside wall 17 is folded upward along the score *r*, the intermediate end wall flaps 20 and 21 passing between the end walls 8 and 9, of the outside box, and the end walls 18 and 19 of the inside box. The intermediate rear wall flaps 12 and 13 may then be folded inwardly, and the ears 14 locked into the slits 26.

In utilizing the box, the partition flaps 25 may, or may not be turned to form a horizontal partition. If they are to be utilized in the formation of a partition, the bottom portion of the box may be filled, and the flaps may be then turned down along the scores *v* and *w*, respectively, to assume the position indicated in Figure 7, in which position the adjacent edges of the partition flaps lie one over the other. In order to secure this arrangement, the scores *v* and *w* are arranged at a distance from the upper edges of the walls 16 and 17, a distance slightly greater than half of the width of the bottom inside wall 15.

When the bottom portion of the box is filled, the upper portion may be filled, and the end flaps 29 of the top may then be folded inwardly, and the top then bent over along the score, to engage the end flaps

between the outside end walls 8 and 9, and the intermediate end walls 22 and 23, respectively. The box will then be in the position indicated in Figure 5.

To complete the closing of the box, the top front flap 28 is bent downwardly and forced into the box with its front face resting against the exposed surface of the front inside wall 16 which is directed toward the interior of the box. If the partition flaps are being utilized to form a horizontal partition, the top front flap 28 will extend across and, when the box is packed with produce, will occupy the space vacated by the partition flap 24, so that the full thickness of front wall will thus be obtained, despite the fact that the flap 24 may have been bent down. A sealing strip of paper or other suitable material indicated at 31 (Figure 6) may then be pasted to the forward corner of the box to close this edge and bind the front outside wall 6 and top 27 together.

If found to be desirable, the top front flap 28, instead of being placed inside of the box, may be arranged on the outside thereof, and a sealing strip pasted over its lower edge to connect it with the front outside wall.

It will be observed, from Figure 1, that the blank from which the box is formed, is made from a rectangular piece of material, with a minimum amount of waste, the only portions of the material that is discarded being the portions which lie at the ends of the end section of the blank, from which the top is formed, and beyond the flaps 12 and 13. This is a matter of great importance in economy of manufacture, since the material from which this type of box is made, is costly, and consequently a great saving is effected by minimizing the waste.

Another advantage, and one of extreme importance arising from this invention, lies in the fact that one surface of the blank, namely, the surface which is on the opposite side of the blank from that exposed to view in Figure 1, may be impregnated with a water-proofing material, such as paraffin, and that when subsequently the box is formed, every outside surface of the box will be water-proofed, and all of the inside surfaces of the box, with the exception of the surface exposed when the partition flap 25 is turned down, and the under surface of the top will be likewise water-proofed. When the partition flap 25 remains up, every inside and outside surface of the box, with the exception of the inside surface of the top, will be water-proofed. This results from the peculiar method of making the blank, and forming the box. Thus the box will be proof from the entrance of water on the outside, and will likewise be proof from the percolation of water from the inside to the outside of the box. The importance of this becomes apparent, when it is understood that it is intended to use these boxes to a great extent in the shipment of fresh vegetables and fruits, and it is particularly important in the shipment of vegetables where the latter have been pre-cooled by the application of cold water, and are packed into the boxes immediately after being pre-cooled and while wet.

The advantage, so far as the actual performing of the water-proofing of the material of the box blank is concerned, arises from the fact that one whole entire surface of the blank from which the box is formed may be water-proofed at one operation. No part of the opposite surface of the blank need be so treated. Thus the box can be water-proofed in one operation, economically and thoroughly, and it is not necessary to water-proof a part, or all of one surface, and then repeat the operation by water-proofing a part or all of the other surface as is often done in other boxes of this general nature. Further, by thus water-proofing one surface of the blank it will be observed that the surface of the rear outside wall 7, and the rear inside wall 17, which are to be pasted together, are thus left unimpregnated, so that they can readily stick together when the paste is applied.

All the abutting surfaces of the box will be unimpregnated, save the end walls of the inside box, in which case an impregnated surface will rest against an unimpregnated surface; the intermediate front wall flaps where the forward impregnated surfaces of those flaps abut against the inner unimpregnated surfaces of the front outside wall 6; the intermediate rear wall flaps, the impregnated outer surfaces of which will abut against the unimpregnated surface of the rear outside wall 7; and the top, front and end flaps where the outside impregnated surfaces of these flaps abut against the unimpregnated surfaces against which they lie when the box is closed. The arrangement of the members which form the end wall of the inner box disposes the impregnated surfaces of these members toward the interior of the box, and hence improves the imperviousness of the end walls to water which may seek its way out from the interior of the box. Another advantage arising from the box as constructed, is the fact that when sealed there is no way of getting to the interior of the box without either destroying the seal, or destroying some of the walls of the box, so that the consumers of goods packed in the boxes will know by the condition of the boxes reaching them whether or not the contents of the box have been tampered with.

Another advantage obtained by this construction, is the fact that the boxes may be

made of relatively thin material, and still conform to the railroad requirements of strength demanded in this type of shipping boxes. It will be noted that when the box is formed, the ends of the box considered as an entity, are of a thickness equal to four layers of the material. The side walls near the end corners are of a thickness equal to three thicknesses of material, the sides intermediate the ends are of a thickness equal to two thicknesses of the material, and the bottom is of a thickness equal to two thicknesses of the material. The end walls are further reinforced in thickness and in strength by the end top flaps which fit into the ends of the box.

The advantage of this strong construction resides in the fact that these boxes, filled with goods, may be readily packed one on top of the other, without danger of the boxes crushing or breaking.

In practice, it has been found that the boxes are exceedingly economical to make; are readily and quickly formed and may be shipped great distances packed with goods, and arrive at their destination with the boxes and the goods contained therein, in excellent condition.

The form and type of box which has been described is intended primarily for holding certain quantities of fruits or vegetables. In shipping, it is intended that a number of these boxes be packed within a larger box, i. e., a shipping container. When this use is made of them, the smaller boxes are usually not reinforced.

However, if desired, the smaller boxes may be individually shipped, that is, the smaller boxes may be used as shipping containers. In this case it is desirable to reinforce them, to increase the thicknesses of the bottom and walls, and to strengthen the boxes.

In the regulations covering shipping containers formed of the material of which these boxes are to be made, for railroad shipments, specified thicknesses of the board from which the walls of the box are made, are required, and the strength or thickness of these walls varies with the weight the box is designed to carry. These regulations call for thicknesses of material ranging from .060 of an inch, to .100 of an inch.

These smaller boxes are made of relatively thin material, and if we assume that it requires three thicknesses of material to produce a combined wall thickness of .060 of an inch, the box as constructed would correspond to the requirements in so far as the side walls of the box are concerned, all of the sides having at least three thicknesses of material. The bottom of the box, however, will only have two thicknesses. Thus when these boxes are to be used as individual shipping containers, I utilize, in forming them, a reinforcing blank of the type shown in Figure 8, to increase the thickness at the bottom of the box, and to further strengthen the sides and corners.

This blank constitutes a rectangular bottom 40 of substantially the same dimensions as the bottom outside wall 5 of the box. At a distance from each end, corresponding substantially with the height of the end walls of the box, the blank is transversely scored as at 41, and at less distances from its edges, the reinforcing blank is longitudinally scored as at 42. The ends 43 formed by the scores 41 and 42 have attached flaps 44, which are separated by cuts 45 from the side flaps 46 formed along the longitudinal edges of the bottom 40 by virtue of the scores 42. It will be understood that the cuts 45 extend from the longitudinal edges of the blank, only to the scores 42.

The blank is folded up with the blank which forms the box-proper, during the formation of this box. At Figure 9 is shown a step in the formation of the box, together with the reinforcing blank. In forming the reinforced box, the reinforcing blank is laid upon the box blank, with the bottom 40 of the blank resting upon the outside bottom 5 of the box blank. From Figure 9 it will be observed that the end flaps 44 of the reinforcing blank are folded up when the intermediate flaps 10, 11, 12 and 13 are folded up, and that the ends 43 of the blank are folded up when the outside end walls 8 and 9 of the box blank are folded up. Similarly, the side flaps 46 are folded up when the front outside walls 6 are folded up, and the intermediate rear wall flaps 12 and 13 are folded inwardly. When the inside box is folded over to nest within the outside box, the bottom 40 of the reinforcing blank will be positioned between outside wall 5, and the bottom inside wall 15. Likewise, the parts 43, 44 and 46 of the reinforcing blank will lie between the walls of the inside and outside box. Thus the bottom of the box will be strengthened, as well as the walls, and at the corners where the flaps 44 and 46 over-lap, the box will be materially strengthened and rigidified.

The tapered box which is constructed according to my invention, is substantially similarly to the rectangular box, varying therefrom in certain details which will hereinafter appear. Tapered boxes, that is, those which are smaller at the bottoms than at their tops, have a number of advantages. In the first place, when a number of these boxes are assembled side by side, and end to end and one on top of the other, in a larger container, spaces are provided around the lower portions of the boxes, because of their tapering formation, and these spaces allow circulation of air for ventilating the boxes. These ventilating spaces provided

between the boxes greatly facilitate the pre-cooling of the contents of the boxes when the boxes are packed or stored or shipped in refrigerating atmospheres. In cases where materials which have a tendency to heat in bulk are to be handled, such as potatoes or apples, these products can be more quickly pre-cooled by having them separated into small units, that is, having them packed into the tapered boxes, because the cold can get to them more readily where they are divided up into smaller units with ventilating spaces between, than were they well packed into great bulk form.

Another advantage of the tapered box is that they may be formed from the blanks at a central distributing point, and may be nested one into the other, and shipped in nested condition to the points at which the boxes are to be packed. With the rectangular boxes on the other hand, it is found more advantageous to ship the boxes in blank form to the points at which they are to be filled and to then form the boxes from the blanks at the filling points.

The blank from which the tapered box is formed, is shown in plan in Figure 10.

The blank is scored and cut to form a bottom outside wall 50, which is rectangular, a front outside wall 51, a rear outside wall 52, outside end walls 53 and 54, intermediate front wall flaps 55 and 56, and intermediate rear wall flaps 57 and 58. The parts which have just been enumerated, compose the middle section of the blank, and from these parts the outer box is formed. In Figure 10, the full lines designate cuts, and the dotted lines designate scores, and it will be observed that the ends of the front outside wall 51 and rear outside wall 52 are so cut that the ends of these walls taper toward the bottom outside wall 50. Likewise, it will be noted that the scores which separate the outside walls 53 and 54 from their flanking intermediate front wall flaps and intermediate rear wall flaps, taper toward the bottom outside wall.

The complementary section (from which the inner box is formed) includes the bottom inside wall 59, front inside wall 60, rear inside wall 61, inside end walls 62 and 63, intermediate end walls 64 and 65, and the locking flap 67. The bottom inside wall 59, similar to the bottom outside wall 50, is rectangular. The inside end walls 62 and 63 are separated from the flanking portions of the blank by cuts, which are tapered toward the bottom inside wall 59, so that the inside end walls when the box is formed, will be of a tapering shape. The scores which separate the intermediate end walls 64 and 65 from the rear inside wall 61, likewise taper toward the bottom inside wall 59, and the cuts which separate the front inside wall 60 from the intermediate front wall flaps 55 and 56 are also tapered. The forward edges of the intermediate end walls 64 and 65 are tapered longitudinally with respect to the rear inside wall 61, and toward the outer ends of the intermediate end walls, and these outer ends taper toward the bottom inside wall 59. The ends of the intermediate rear wall flaps 57 taper in the same direction as the ends of the intermediate end walls 64. All of the portions which go to make up the walls of the completed box, by reason of the conformation of the blank in the manner described, fit properly in position with respect to each other, and give to the walls a tapered form, such that the walls diminish in length toward the bottom of the box. It will be noted that the intermediate front wall flaps 55 and 56 in this form of blank, overlap, as shown in Figure 11, when the box is formed, and these flaps are provided with locking slits 68 and 69 which engage each other to retain the intermediate front wall flaps together. These flaps, when brought into overlapping relation and locked, form an intermediate wall against the forward face of which the front outside wall 51 is brought in the further completion of the box, and against the rear face of which the front inside wall 60 is brought. The score 70, separating the front outside wall 51 from the front inside wall 60, marks the line along which these two walls fold with respect to each other. The tapered form of box is formed substantially in the same manner from the blank, as is the rectangular box, and a description having already been given as to the method of forming the rectangular box, it is not believed necessary to further describe the formation of the tapered box than to note that the inner and outer boxes are formed as indicated in Figure 11, whereupon the outer box may be lifted up, together with the front inside wall 60, and bent over and nested within the inner box. The locking flap 67 may then be turned down over the intermediate rear wall flaps 57 and 58, and the locking slits 71 of the locking flap engage with the locking slits 72 of the intermediate rear wall flaps. The box will then be in the position shown in Figure 12. The rear outside wall 52 may then be folded up, and may be secured by staples passing through the members forming the rear wall of the completed box. These staples may take the position indicated in dotted lines at 73 in Figure 12, it being understood that this is merely to indicate where the staples may be passed through in a manner to securely connect the portions forming the rear wall together.

The end section of the blank from which the box is formed, includes the top 74, top end flaps 75, and top front flap 76. It is

substantially similar to the end section of the rectangular blank, except that the top front flap is provided with locking ears 77 at its ends, and when the top is in position, the top flap may over-lie the front face of the front wall of the box and may engage in locking notches 78 provided in the front outside wall for the purpose of retaining the top in position. In positioning the top, it will be understood that the top end flaps may fit down between the outside end walls 54, and the intermediate end walls, as has already been set forth with respect to the rectangular box.

Instead of stapling the box, it may, of course, if so desired, be glued in the same manner that the rectangular box may be glued. If desired, another way of securing the boxes of either type, is by running a row of stitches along the edges of the rear wall, thus sewing the members which form the rear wall together. In certain cases, instead of following these methods of securing the box, I will apply an adhesive to the entire upper surface of that portion of the blank which forms the walls and bottom, so as to securely glue all of these parts together. This method will be followed in making the larger shipping containers.

One of these containers is shown in Figure 13. It will be made with rectangular or tapering walls, and it will be provided with a reinforcing blank of the same type as that described with reference to Figure 9. This reinforcing blank is shown in dotted lines in Figure 13. In making the shipping containers, I do away with the locking devices, because of the fact that all of the parts are held together by an adhesive, and I may eliminate the locking flap 67, the intermediate rear wall flaps, indicated at 57′ and 58′ in Figure 13, being merely brought up and glued to the rear inside wall. I also eliminate the attached top, and provide a locking flap 79 along the outer edge of the rear outside wall, this flap, when the wall is brought up, being folded over the upper edges of the intermediate rear wall flaps 57′ and 58′ and the upper corners of the reinforcing blank, thus being positioned between the flaps and the rear inside wall. The adhesive will secure this flap in position. The reinforcing blank, the position of which is indicated in dotted lines in Figure 13, is preferably coated on both faces with adhesive to bind these faces firmly to those portions of the box with which they come in contact.

The shipping container is preferably provided with the type of lid or top shown in Figure 14, in which the top is separate from the box blank, and is provided at each edge with a flap which folds down against the outside of the corresponding wall of the container.

The sealing method shown in Figures 15 and 16, I apply to the smaller boxes, in which produce is packed, and which in turn are placed in a larger shipping container for actual shipment. At its destination, the shipping container may be opened, and the smaller boxes removed therefrom. In this method of sealing a smaller box, I provide a sealing flap 80 in the front outside wall of the box, which flap opens toward the top of the box, and which, when the box is originally packed, lies outside of the top front flap, as shown. A sealing strip 81, coated on its inner face with adhesive, is stuck over the sealing flap and onto the top of the box, thus holding these two parts together. The locking ears of the front flap are preferably left disconnected from the locking notches, thus eliminating the time which would be required to engage these ears with the notches. The purchaser of the box can readily break the sealing strip 81, and the lid may then be lifted up. When it is desired to close the box, the lid is lowered, and the front flap turned down over the sealing flap, and the locking ears engaged in the locking notches, as indicated in Figure 16. This method of sealing the box, insures that any tampering of the contents will become evident to one buying the box, by reason of the fact that access cannot be had to the interior of the box without breaking the sealing strip. It further provides a convenient means for retaining the box lid in closed position after the sealing strip is broken by the consumer. It further eliminates time in the preparation of the box for shipping, since the sealing strip may be applied very quickly and in a much shorter length of time than would be required to engage the locking ears with the locking notches.

The foregoing detailed description has been given for purpose of illustration only, and no undue limitations are to be deduced therefrom, but the claims should be construed as broadly as permissible in view of the prior art.

Having thus described my invention what I claim as new, and desire to secure by Letters Patent is,—

1. A box blank including a middle section from which an outer box may be formed, a complementary section integral with the middle section and from which an inner box, capable of nesting into the outer box, may be formed, and an end section integral with the middle section, and from which a top may be formed, said middle section being scored and cut to form a bottom outside wall, a front and a rear outside wall flanking the bottom wall and connected thereto by scores, outside end walls at opposite ends of the outside bottom wall and connected thereto by scores, intermediate front wall flaps connected to the outside end walls by scores, and

separated from the front outside wall by cuts, intermediate rear wall flaps connected to the outside end walls by scores and separated from the rear outside wall by cuts, and also separated from the end section, and co-operating locking means between the intermediate rear wall flaps and the complementary section.

2. A box blank including a middle section from which an outer box may be formed, and a complementary section integral with the middle section and from which an inner box, capable of nesting into the outer box, may be formed, said complementary section being scored and cut to form a bottom inside wall, a front and rear inside wall flanking the bottom wall and connected thereto by scores, inside end walls at opposite ends of the bottom inside wall and connected thereto by scores, intermediate end walls connected to the ends of the rear inside walls by scores and separated from the inside end walls by cuts, other intermediate end walls connected to the ends of the front inside wall by scores and separated from the inside end walls and from the said middle section by cuts, and co-operating locking means between the rear inside wall and the said middle section.

3. A box blank including a middle section from which an outer box may be formed, and a complementary section integral with the middle section and from which an inner box, capable of nesting into the outer box, may be formed, said complementary section being scored and cut to form a bottom inside wall, a front and rear inside wall flanking the bottom wall and connected thereby by scores, inside end walls at opposite ends of the bottom inside wall and connected thereto by scores, and intermediate end walls connected to the ends of the rear inside walls by scores and separated from the inside end walls by cuts, and co-operating locking means between the rear inside wall and the said middle section.

4. A box blank including a middle section from which an outer box may be formed, a complementary section hinged to the inner section and from which an inner box, capable of nesting within the outer box may be formed, each of said sections being scored and cut to form a bottom wall, side walls flanking the bottom wall, and end walls, the middle section being provided with intermediate wall flaps hinged to opposite sides of its end walls, and being otherwise free from the blank and adapted in the formed box to lie between the side walls of the inner and outer boxes, the complementary section being provided with intermediate end walls hinged to opposite ends of its side walls and being otherwise free from the blank.

5. A box blank including a middle section from which an outer box may be formed, a complementary section hinged to the inner section and from which an inner box, capable of nesting within the outer box may be formed, each of said sections being scored and cut to form a bottom wall, side walls flanking the bottom wall, and end walls, one of the sections being provided with intermediate wall flaps hinged to opposite sides of its end walls, and being otherwise free from the blank, the other section being provided with intermediate end walls hinged to opposite ends of its side walls and being otherwise free from the blank, and locking means between one of the side walls of the complementary section and a pair of intermediate wall flaps of the middle section.

6. A box blank including a middle section from which an outer box may be formed, a complementary section hinged to the inner section and from which an inner box, capable of nesting within the outer box may be formed, each of said sections being scored and cut to form a bottom wall, side walls flanking the bottom wall, and end walls, one of the sections being provided with intermediate wall flaps hinged to opposite sides of its end walls, and being otherwise free from the blank, the other section being provided with intermediate end walls hinged to opposite ends of its side walls and being otherwise free from the blank, and a reinforcing blank including a bottom and ends coinciding substantially in area with the bottom and end walls, respectively, of the middle section, end flaps hinged to the ends, and side flaps hinged to the bottom, said reinforcing blank adapted to be formed when the box is formed, and when so formed to afford reinforcements between the bottoms, sides, and ends of the outer and inner boxes.

7. A box folded from a blank, including an outer box, an inner box hinged thereto and nesting therein, said outer box including intermediate wall flaps engaging between the side walls of the inner and outer boxes, said inner box including a plurality of end walls engaging between the end walls of the inner and outer boxes, and co-operating locking means between one of the side walls of the inner box and a pair of intermediate wall flaps of the outer box.

8. A box folded from a blank, including an outer box, an inner box hinged thereto and nesting therein, said outer box including intermediate wall flaps engaging between the side walls of the inner and outer boxes, said inner box including a plurality of end walls engaging between the end walls of the inner and outer boxes, and co-operating locking means between one of the side walls of the inner box and a pair of intermediate wall flaps of the outer box, and a top integral with one of the side walls of the outer box and having end flaps adapted to engage between the end walls

of the outer box and the intermediate end walls of the inner box, and also having a front flap.

9. A box folded from a blank, including an outer box, an inner box hinged thereto and nesting therein, said outer box including intermediate wall flaps engaging between the side walls of the inner and outer boxes, said inner box including a plurality of end walls engaging between the end walls of the inner and outer boxes, and cooperating locking means between one of the side walls of the inner box and a pair of intermediate wall flaps of the outer box, the inner box having a partition wall separated in part from the box along the hinged connection between the inner and outer boxes, and a top hinged to one of the boxes and having a front flap adapted to extend across the space where the partition wall is separated from the inner box.

10. A box folded from a blank, including an outer box, an inner box hinged thereto and nesting therein, said outer box including intermediate wall flaps engaging between the side walls of the inner and outer boxes, said inner box including a plurality of end walls engaging between the end walls of the inner and outer boxes, and co-operating locking means between one of the side walls of the inner box and a pair of intermediate wall flaps of the outer box, and a reinforcing blank including a bottom, ends, and sides interposed respectively, between the bottoms, ends, and sides of the inner and outer boxes.

11. A box folded from a blank, including an outer box, an inner box hinged thereto and nesting therein, said outer box including intermediate wall flaps engaging between the side walls of the inner and outer boxes, said inner box including end walls engaging between the end walls of the inner and outer boxes, a reinforcing blank including portions interposed between the bottoms, ends, and sides of the inner and outer boxes, and interlocking means between the inner and outer boxes.

12. A box folded from a blank, including an outer box, an inner box hinged thereto and nesting therein, said outer box including intermediate wall flaps engaging between the side walls of the inner and outer boxes, said inner box including end walls engaging between the end walls of the inner and outer boxes, a reinforcing blank including portions interposed between the bottoms, ends, and sides of the inner and outer boxes.

13. A box folded from a blank and including an outer box and an inner box hinged thereto and nesting therein, the outer box having end walls and side walls and having intermediate wall flaps hinged to the end walls and separated from the side walls and engaging between the side walls of the inner and outer boxes, the inner box including a plurality of end walls engaging between the end walls of the inner and outer boxes.

In testimony whereof I hereunto affix my signature.

HENRY EDWARD KONDOLF.