

July 29, 1941.

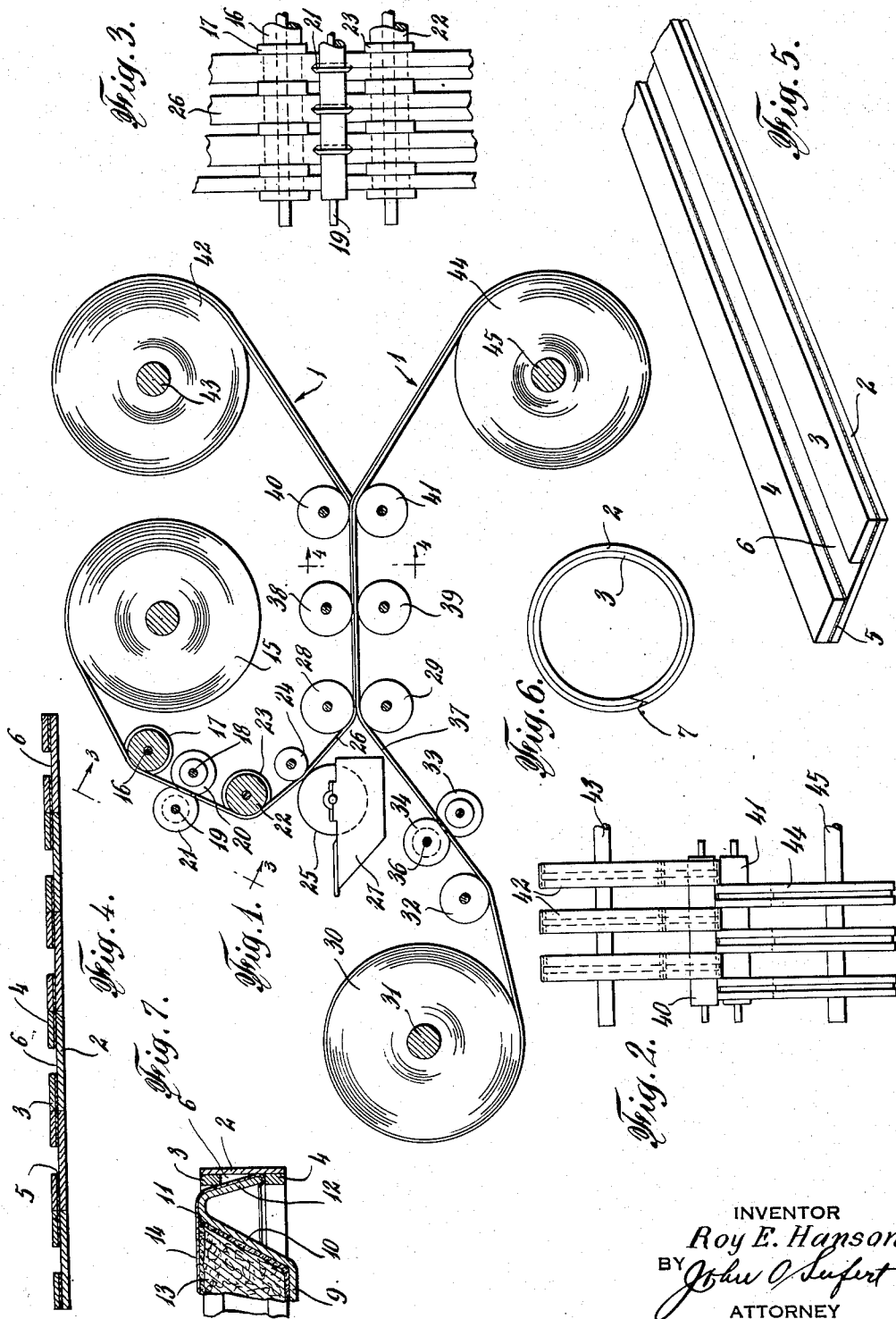
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METHOD OF MAKING RINGS FOR PACKAGES

Filed April 22, 1938

2 Sheets-Sheet 1



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2 Sheets-Sheet 2

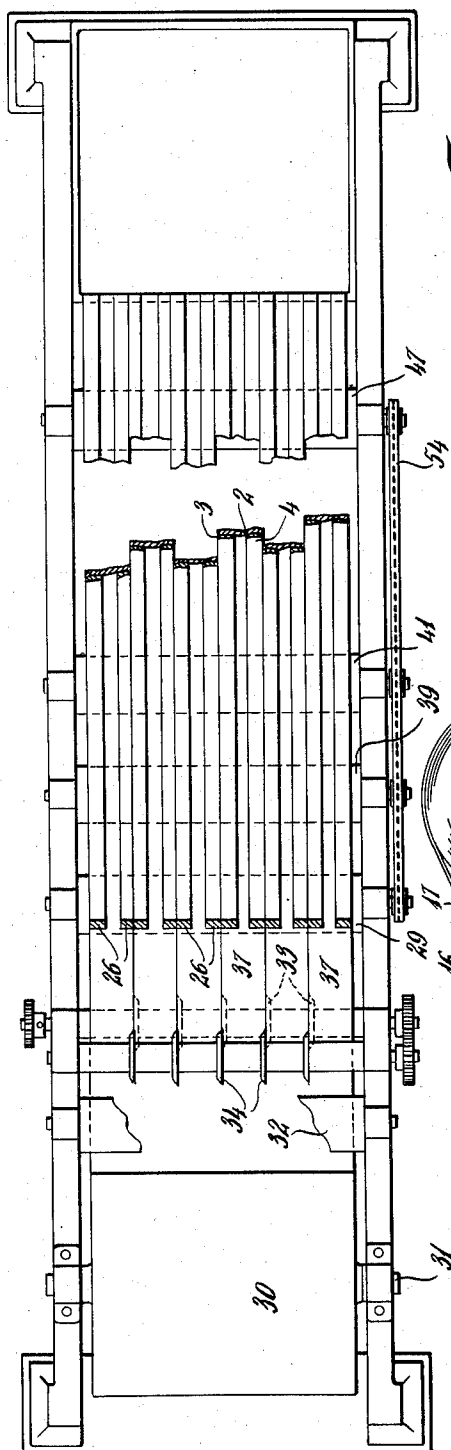


Fig. 9.

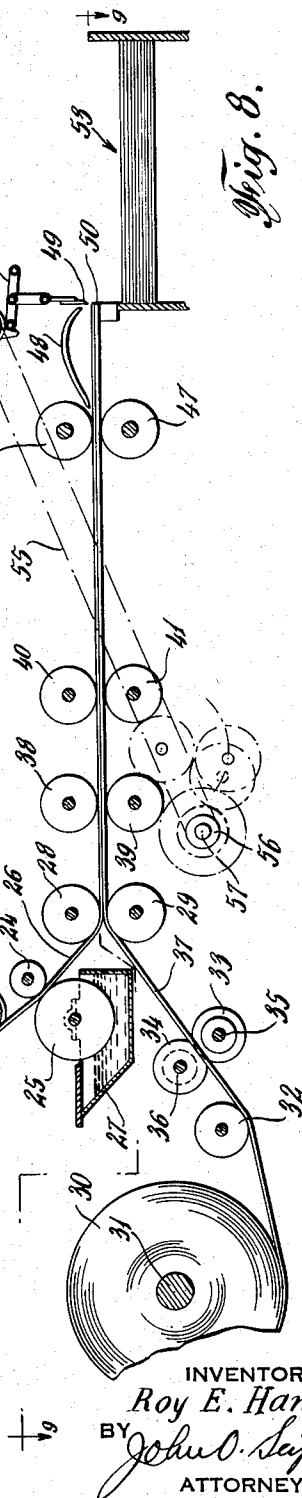


Fig. 8.

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METHOD OF MAKING RINGS FOR PACKAGES

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Application April 22, 1938, Serial No. 203,616

1 Claim. (Cl. 154—40)

My invention relates to a novel ring and method of making the same, the ring being adapted to serve as a snap-on ring to be applied to pie plates and cake plates, for the purpose of clamping upon the plate a sheet of transparent or similar material such as "Cellophane," to constitute a cover for and part of a package for holding pies, cakes and other articles. Such rings have an inwardly extending shoulder at the opposite ends forming a groove on the interior side to receive the outer edge of the plate, the shoulders on the opposite sides of the groove functioning to lock the ring upon the edge of the plate and to secure the transparent sheet which extends across the product and the plate, to hold the transparent sheet in position.

Various methods have been proposed for making such rings but the present ring and the method of making it is very simple and it permits the rings to be made at very high speed as compared with previous methods because a number of strips from which the rings are to be formed may be made simultaneously in parallel relation so that comparatively wide strips of material may be handled by the machine in such manner that a number of strips may be constructed side by side on a wide strip of backing material and the sheet may be slit or divided into a number of parallel individual strips, each one constituting a strip from which a ring of the character described may be formed.

The strips formed in the present machine may be bent into circles or complete rings and the ends may be attached together in various ways to complete the rings. The material for the rings may be transported in rolls, each containing enough strip material to make a number of rings, and this strip material may be cut and the ends joined to complete the rings at the place of use or at the bakeries, when it is desired to ship the material in condensed form to obtain low transportation cost. On the other hand, the strips may be severed into suitable lengths, bent into circular form, and the ends secured at the place of manufacture of the strips, so that the rings may be sold to the consumers in the finished condition.

My invention relates more particularly to the method of making the strips for the rings, regardless of whether the rings are completed at the places of use or at the factory where the strips are made.

One method heretofore proposed for making such rings has been to take a piece of stock such as bendable cardboard, and fold the side edges

inwardly once, and sometimes twice, with the folded portions separated from each other at about the middle of the strip to provide a groove in which the edge of the plate or package is to be snapped. This method makes it necessary to use a more pliable stock than can be handled under the present method, thereby making the ring less rigid.

Another disadvantage is that rings of this type must be made singly and in succession, whereas the present method makes it possible to simultaneously form a number of strips in parallel relation and simultaneously. This makes it possible to produce with a single machine a very great number of rings or strips for rings in any given time. A multiple of strips may be made in parallel relation as rapidly or even more rapidly than single successive strips were made under previous methods.

The strips themselves or the rings made therefrom each has a strip of backing material with two strips of reinforcing material attached adhesively to the backing material in spaced, parallel relation to form a groove between them extending longitudinally of the strip or at the inner side of the completed ring.

The present ring may be advantageously applied to plates or supports like those shown in the patents to George S. Frost No. 2,041,537, patented May 19, 1936, and No. 2,157,407, patented May 9, 1939, although they are not limited to use with such plates or supports.

Other features and advantages will be set forth in the following detailed description of my invention.

In the drawings forming part of this application,

Figure 1 is a longitudinal sectional view through a machine by means of which my improved rings may be made,

Figure 2 is a view, on a reduced scale, looking at the parts at the right hand end of Figure 1,

Figure 3 is a sectional view taken on the line 3—3 of Figure 1,

Figure 4 is a sectional view through the wide strip taken on the line 4—4 of Figure 1 looking in the direction of the arrows and showing how it is slitted lengthwise to divide it into a number of narrow strips from which the rings are made,

Figure 5 is a perspective view on an enlarged scale and showing a portion of one of the narrow strips before it is made into a ring,

Figure 6 shows the ends of one of the narrow strips joined together to complete a ring for application to a package,

Figure 7 is a sectional view of a pie package, showing the application of one of my improved rings to the plate,

Figure 8 is a view similar to Figure 1 showing the machine not only for making the strip material, but for automatically cutting it into lengths suitable for forming the rings, and

Figure 9 is a sectional view thereof taken on the line 9-9 of Figure 8.

I will first describe the subject matter of Figures 1 to 7 inclusive. In Figure 5 I have shown one of the individual strips or webs 1 from which the rings are to be made for application to a plate or other support to form a package. In this view the backing material 2 is of the full width of the complete strip. Along opposite sides of this backing material there are applied two spaced strips 3, 4 which may be of the same thickness as the backing material, or slightly thicker forming when the strip is shaped to ring form substantially rigid inwardly extending annular shoulders at the opposite ends thereof. These side strips are secured to the backing material by a coating of adhesive material 5 the thickness of which is exaggerated in Figure 5 as the adhesive is not obvious in the manufactured product. The two reinforcing or thickening members 3, 4 are applied to the backing material in spaced relation to form a groove 6 between them on one side of the strip and extending the full length thereof.

The strips or webs 1 as shown in Figure 5 may be of great length and may be rolled into reels or spools and shipped in this condition to the consumers of the rings for the latter to cut the material into suitable lengths, and then bend the pieces into circular form and secure the ends together to complete a ring 7 such as is shown in Figure 6. On the other hand, the complete ring may be made at the point of manufacture of the strips so that the product may be shipped as completed rings to the consumers. Where the strip material is wound in large reels or spools and shipped in this condition, for the consumer to complete the rings, there is the advantage that considerable saving may be had in freight charges because of the compact form of the product during shipment. However, either course may be followed under my invention.

In Figure 6 I have shown one of the individual strips coiled in the form of a ring with the ends attached, and these ends may be secured together by gluing or stitching, or in any other manner. Preferably, the ends of the individual strips are chamfered to form a mitred joint, as shown at 7 in Figure 6.

In Figure 7 I have shown one method of applying the rings to complete a package suitable for holding a pie. In this view I have shown a pie plate consisting of a bottom wall 9 from the outer edge of which extends upwardly a frusto conical wall 10 and at the top of this wall there is a narrow horizontal wall 11 and from the outer end of this extends outwardly and downwardly a frusto conical flange 12. After the pie 13 has been placed upon the plate, a sheet of pliable transparent material 14, such as Cellophane, is placed over the pie and it is of sufficient dimensions to project beyond the outer extremities of the plate.

In applying a ring 7, such as is shown in Figure 6, to a plate to secure the cover sheet 14 thereto the ring is engaged upon the outer portion of the transparent sheet opposed to the frusto conical flange 12 and as the ring is pressed

downwardly on said flange 12 of the plate the lower one of the shoulders 3 or 4 will constrict said flange and cause the shoulder to pass over the free edge of the flange, whereupon the latter by the resiliency thereof will spring outwardly and its free edge expands into the groove 6 between the shoulders 3 and 4, and the assembly of the package is completed. The ring seated on the flange of the plate secures the outer edge of the sheet 14 around the free edge of the plate and holds it in position until such time as the package is to be opened.

To open the package the plate pressure is applied to the ring causing it to move relative to the upper shoulder constrict the flange 12 and ride over the edge thereof which releases the sheet 14 and allows access to the pie. One or more pieces may be cut from the pie and the package may be reassembled to protect the unused portion.

In Figures 1 to 3 I have shown the principal parts of a machine for carrying out the method of producing the strips for the rings, wherein the material is produced at a very high rate of speed. For instance, there is a roll or rolls 15 of webs of material, such as cardboard or similar material of sufficient thickness to constitute the projecting portions or shoulders 3, 4 on the finished strip and it may be either of the same thickness as the backing material or even thicker. The webs of the end rolls 15 are of a width equal to the width of a projecting portion 3 or 4 and the intermediate webs are of a width equal to two of the projecting portions 3, 4. The material from this reel passes first over a roller 16 which has guide flanges 17 engaging the side edges of the webs to prevent lateral displacement thereof. The material then passes through a series of slitters or cutters which divide the wide web into a pair of parallel strips or webs 26.

The slitters are preferably arranged on parallel shafts 18, 19 and consist of discs 20 on one of the shafts 18 which have plane outer surfaces; and on the companion shaft 19 there are discs 21 having their edges sharpened on one side, these discs slightly overlapping or having their sharpened edges engaging against one of the side faces of the discs 20 so that the two sets of discs act by shearing action to slit the webs of material coming from the reel 15 in continuous manner. The slitters here described are preferably arranged in pairs, the slitters of each pair being disposed in spaced relation equal to the width of the groove 6 on the finished strips, and each pair being spaced from an adjacent pair equal to two of the projections 3, 4 of the finished strips for a purpose which will appear hereinafter.

After the material passes the slitters 20, 21 it will consist of a number of parallel strips 26 spaced laterally from each other to correspond with the width of the grooves 6 of the finished material. These parallel strips will pass over a guide roller 22 which may have a series of flanges 23 disposed along its length so that each strip will be guided between a pair of these flanges. The strips will then pass between a guide roller 24 which simply acts as an idler and as a guide, and also between it and an adhesive, such as paste or glue applying roller 25 which applies a continuous coating of adhesive material to the under side of each of the individual strips 26 which are fed past the roller 25. The paste or adhesive roller 25 revolves as an idler or it may be driven if desired, and its lower portion dips

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into a body of liquid adhesive held in the fountain 27. After passing between the idler 24 and the adhesive roller 25 the several strips 26 pass partly around the first pressing roller 28 and between this roller and a co-operating under roller 29 which also acts as a pressing roller. As the strips 26 reach the bight of the two rollers 28, 29 they come into contact with the backing material in the following manner:

There is a roll or reel of material 30 which may be cardboard or other suitable material, and which is mounted on an arbor 31. This web of material is of considerable width so that it forms a backing to which a number of parallel strips 26 may be applied. This web passes partly around a guide roller 32 and thence between a series of rotary slitting members 33 and 34 arranged on the parallel shafts 35, 36 and which correspond with the slitters 20, 21 except that the slitters 33, 34 are arranged in pairs and each pair is spaced apart on their respective shafts distances corresponding with the width of the finished strip shown in Figure 5. These slitters 33, 34 therefore, divide the web coming from the reel 30 into a number of parallel webs or strips 37 corresponding in width with the backing material 2, shown in Figure 5. These individual strips 37 traveling edge to edge and in a common plane, travel over the roller 29 and through the bight formed between said roller and the pressing roller 28.

At the time the strips 37 pass between the rollers 28, 29, they come into contact with the strips 26 after the latter have been supplied with adhesive by the paste roller 25. As shown in Figure 4, each strip 37 corresponding in width with the width of the final strip shown in Figure 5, will have two of the strips 26 attached to it, with the outer edges aligning with the edges of the strip 37, and with the groove 6 between each pair of strips 37 which form the shoulders or projections 3 and 4 of the final strips.

Preferably, the combined strips 1, after passing between the rollers 28, 29, pass between another pair of pressing rollers 38, 39 and in the form of the invention shown in Fig. 1 the strips also pass between a third pair of rollers 40, 41. The number of pressing rollers between which the combined strips 2, 3 and 4 pass may be greater or lesser than the number shown in the drawings. Alternate strips 1 delivered from the rollers 40, 41 are wound into rolls 42 on the shaft 43. Other strips coming from the rollers 40, 41 are delivered from the rollers at a different angle and are formed into rolls 44 which are wound upon the shaft 45. The strips which are wound into the rolls 44 are alternate in position in relation to the strips which are wound into the roll 42, as shown in Figure 2, to insure complete separation of the several strips as they are formed into rolls.

The material in the rolls 42 and 44 may be removed from their shafts 43, 45 and in the form of reels they may be shipped out to the consumers or bakeries where they may be cut into suitable lengths to form rings and the ends of the strips united to complete the rings. If the material is shipped in this form, that is, long lengths wound into reels or spools, it will be compact and the freight cost will be relatively low.

If desired, the strips delivered from the rollers 40, 41 may be immediately cut in the same machine into individual lengths and the separate pieces may be formed into rings and their ends attached at the place of manufacture of the

strip material. As shown in Figures 8 and 9, the machine may be modified to accomplish this result. In this construction, all of the parts at the left hand end of the machine or down to the rollers 40, 41 may correspond with the parts shown in Fig. 1 and they are numbered to correspond therewith. In this form of the invention, however, the several strips 1 delivered from the rollers 40, 41, may pass between a pair of rollers 46, 47, thence under a curved guide 48 which limits the buckling action of the several strips. After passing between the rollers 46, 47 the various strips lying in a common plane are severed by a guillotine knife 49 co-operating with the cutting edge 50, whereupon the strips are delivered into stacks 53 on a suitable piling table. The guillotine knife 49 may be attached to a lever 51 which is operated by a cam 52 so that periodically the guillotine is lowered to sever a row of strips which then fall into the piles 53.

The several pressing rollers 28, 29, 38, 39, 40 and 41 may be driven in unison by chains 54 operating over sprockets on the shafts of these several rollers as shown in Fig. 9. The chain 55 operated by a sprocket 56 on the drive shaft 57 which drives the several pressing rollers may operate on a sprocket 58 on the same shaft 59 which carries the cam 52 so that the timing of the knife 49 will correspond with the rate of feed of the strips by the several pressing rollers. It will be understood that any other type of cutting device may be used to cut the strips in place of the guillotine 49.

The completed strips as shown in Figure 5 and which have been stacked in the several piles 53 may be bent into circular form with the grooved portions 6 facing inside the ring and the free ends of the strips may be attached together to form the completed rings as shown in Figure 6.

It will be apparent that by this method a large number of strips may thus be formed simultaneously in parallel relation so that the finished strips 1 may be made at a high rate of production from a given machine and that the output will be many times greater than by any process or machine which forms the strips in successive order only. The number of strips which can be made simultaneously side by side is only limited by the width of stock available for use in the machine.

The method forming part of my invention consists of applying spaced parallel strips to a backing material to form the pieces from which rings may be produced having a groove adapted to receive the edge of a plate or other support onto which the ring is snapped. It is not necessary that the shoulders or projections 3 and 4 be of equal width since they may be of relatively different widths if desired.

Having described my invention, what I claim is:

The method of producing composite material adapted to be formed into rings to be engaged upon and secure a cover sheet to a plate or support to form a package, which consists in providing a web of relatively stiff though bendable cardboard material and while continuously feeding said web longitudinally slitting and separating said web into a series of webs of equal width, continuously feeding a second series of webs of relatively stiff though bendable cardboard material of less width than the first series of webs and simultaneously longitudinally slitting and separating each of said second series of webs into a pair of webs of a width less than one-half the width of the first series of webs, and while con-

tinuously feeding said second series of webs applying adhesive to a face thereof and juxtaposing the adhesive carrying face of said second series of webs to a face of the first series of webs to extend longitudinally thereof with an edge extending substantially parallel to an edge of the

first series of webs and producing a plurality of webs having a groove extending lengthwise of a face thereof, and subjecting the united webs to pressure to intimately unite the same.

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