Mar. 20, 1923. 1,449,073.

J. C. THOM.

PACKAGE AND METHOD OF MAKING SAME.

FILED JAN. 3, 1921.

Fig. 1.

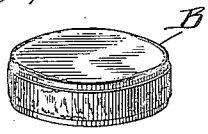


Fig. 2.

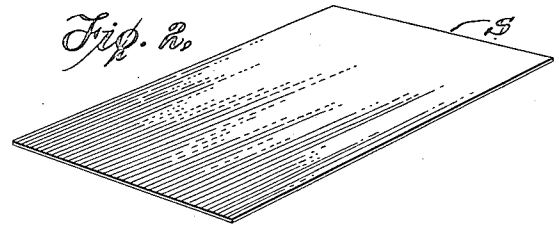


Fig. 3.

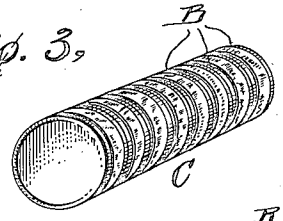


Fig. 4.

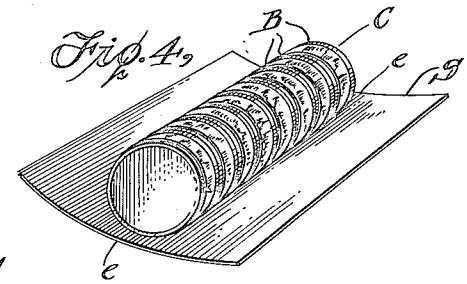


Fig. 5.

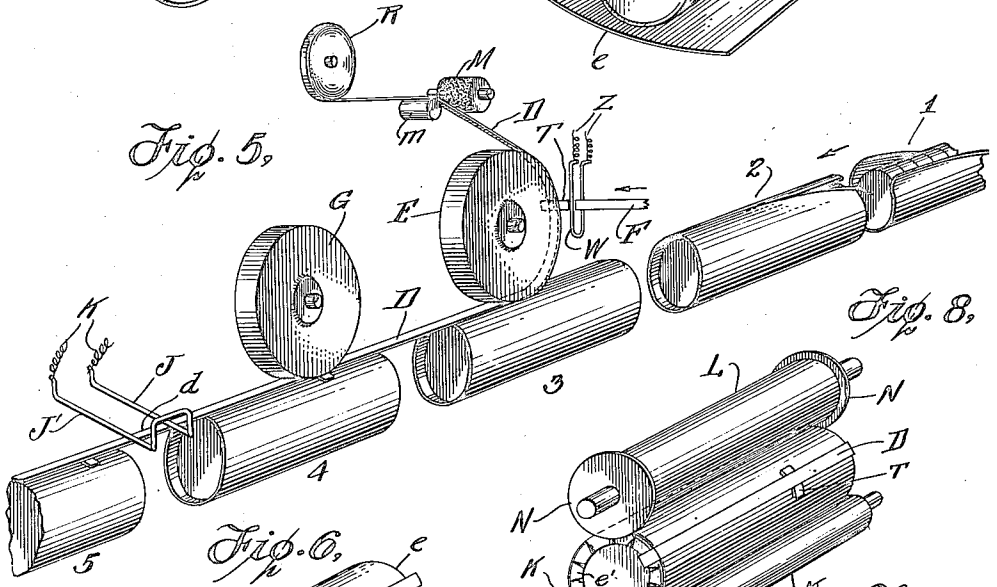


Fig. 8.

Fig. 6.

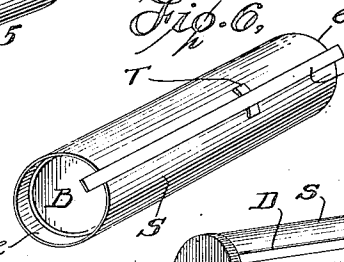


Fig. 9.

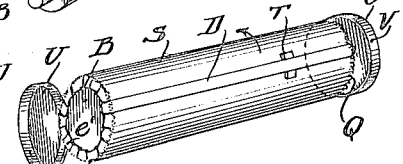


Fig. 10.

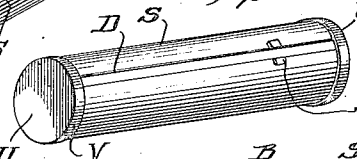


Fig. 7.

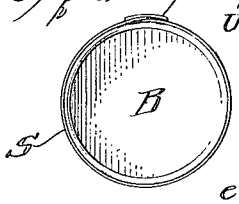
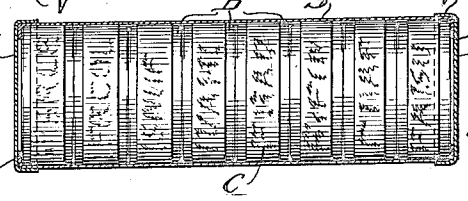


Fig. 11.



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BY
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ATTORNEYS

Patented Mar. 20, 1923.

1,449,073

UNITED STATES PATENT OFFICE.

JAMES C. THOM, OF CHICAGO, ILLINOIS, ASSIGNOR TO COMBINATION MACHINE COMPANY, OF NEW YORK, N. Y., A CORPORATION OF DELAWARE.

PACKAGE AND METHOD OF MAKING SAME.

Application filed January 3, 1921. Serial No. 434,639.

To all whom it may concern:

Be it known that I, JAMES C. THOM, a citizen of the United States, and resident of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Packages and Methods of Making Same, of which the following is a specification.

My invention relates to packages of new and advantageous form, and to methods of making such packages.

In respect to the package, a leading object is to provide a cheap and secure enclosure for a number of separate articles, such as individual boxes or packages, having necessary strength and rigidity, and capable of being easily opened for access to the contained units.

The class of articles for the packaging of which my invention is especially available, is well exemplified by round, comparatively shallow boxes with flat ends (top and bottom) containing snuff, or other commodities, which are desirably arranged, for shipment and vending, in packages, each containing a number of boxes. Such boxes have heretofore been packed in stiff card-board tubes, with end seals, the boxes being arranged in flatwise contact, end to end, the necessary package rigidity to prevent dismemberment of the package and injury to the contained boxes, being afforded by the rigidity of the container-body. The packing of such containers has been accomplished by hand operations.

In a representative physical embodiment of my invention, I arrange a suitable plurality of such snuff-boxes, or like articles, in a row or "column," that is, in flatwise engagement, and enclose this column in a side-wrapper of relatively thin paper, the edges of which may approximately meet, or are more or less overlapped along one side of the article column. These edges are then connected, conveniently by a strip of paper, adhesively applied, forming a longitudinal joint completing the side wrapper structure; and when desired the easy opening of the package may be provided for by placing a tearing tab under the connecting strip as the latter is applied. The side-wrapper is of such length that its end-margins extend beyond the ends of the article column; and these ends are turned in against the ends of the boxes at the ends of the row, and the package is completed by applying cupped or flanged end-caps, adhesively secured.

While the relatively thin side-wrapper has no considerable rigidity in itself, even when rolled into cylindrical form, in the absence of contained articles and end-caps, the completed package has very substantial strength and rigidity, ample for the purposes in view, due to the cooperation of the thin side-wrapper, the contained boxes, and the end-caps. In addition to this, the wrapper material is much cheaper than in the typical prior package-form above mentioned, and the new package is well adapted for production, partly or entirely, by machine operations, with obvious additional economy.

In respect to the method, a leading object is to provide process-steps for the production of such packages which may be performed by hand, but which are especially (some or all of them) adaptable to machine performance.

The characteristics and advantages of the invention are further sufficiently explained in connection with a detail description of the accompanying drawing, which shows a representative embodiment of the new package, and also illustrates representative process-steps for its production. After considering these embodiments of the package and method, persons skilled in similar arts will understand that the invention may be exemplified in many other ways, and I contemplate the employment of any structures and methods which are properly within the scope of the appended claims.

Figure 1 is a perspective view of a snuff-box, chosen as representative of articles which are advantageously packed in accordance with my invention,

Figure 2 is a perspective view of a side-wrapper sheet,

Figure 3 is a perspective view of a group of boxes in endwise or "column" arrangement, for packaging,

Figure 4 shows an article-group in preliminary position on a wrapper-sheet,

Figure 5 shows a succession of article-groups and associated wrappers, progress-

ing in relation to diagrammatically indicated instrumentalities, and illustrates several of the successive wrapper-positioning and securing operations,

Figure 6 shows a partly-finished package, with the wrapper secured in place, and with a tearing (opening) tab in place,

Figure 7 is an end view of the package in this condition,

Figure 8 is a perspective view, illustrating the operation of in-folding the wrapper-margins,

Figure 9 illustrates the application of end-caps,

Figure 10 shows a completed package, in perspective, and

Figure 11 is a side view of the complete package, the contents being shown in full and the enclosure-members in section.

A number of individual articles, such as the round, shallow snuff boxes B, Figure 1, are placed together in flatwise relation forming what may be conveniently described as a row or column C of articles, Figure 3. This column of articles is then placed upon a wrapper sheet S, Figure 2, which may be of any suitable material, but is usually of comparatively thin paper for the sake of economy in cost of wrapper material, since my invention makes it unnecessary to use especially heavy or expensive paper for this purpose. Figure 4 shows the group of articles placed upon a wrapper sheet, whose length should be, as shown, substantially greater than the length of the article row, and whose width is, preferably, approximately equal to the circumference of the boxes B.

A continuous succession of such initial assemblies of articles and wrappers is desirably arranged as in Figure 5, but regardless of the order or arrangement of successive assemblies, the wrapper S is first rolled about the article column by hand or suitable instrumentalities in one or more steps, the assembly position at 1 showing the wrapper partially placed about the article column, and the assembly position 2 showing the wrapper more completely folded or rolled about the articles, and the position 3 showing the wrapper completely rolled about the article column, and in this condition the linear edges of the wrapper may be adjacent and slightly separated, or they may meet more or less exactly, or more conveniently, they may slightly overlap, as best indicated in Figure 7. These linear edges of the wrapper are now secured, and desirably this is accomplished by applying to the wrapper a strip D of suitable material, most conveniently paper, arranged to overlap the intersection of the linear wrapper edges; and this strip is adhesively secured so that substantial portions of it adhere to the wrapper paper at each side of the "joint", as best shown also in Figure 7. The strip D may be in the form of a standard commercial product known as adhesive paper tape, which is furnished in rolls, and Figure 5 shows such a gummed strip supplied from a roll R, and moistened by a moistening instrumentality M to which water may be supplied in any convenient way, and then applied to the wrapper intersection by a suitable instrumentality such as a roller E over which the adhesive strip passes and which presses its moistened adhesive surface upon the wrapper as the articles pass the position 3 in the successive arrangement of Figure 5. Any suitable moistening device may be used, but conveniently this may be of a "roll" type, and in that case a supporting abutment is desirably provided for the strip, in this case in the form of a roll *m*.

Instead of using a gummed strip, a strip of plain ungummed paper may be provided, conveniently in roll form, and in this case the roll M will be a gumming roll suitably supplied with adhesive.

Desirably (but not necessarily) a tearing strip or tab T is applied to the package, and in a desirable form this consists of a short strip of suitable material, usually paper, placed between the wrapper sealing strip D and the wrapper at one point. These tearing tabs may be very conveniently supplied in the form of a continuous strip F, which may be drawn from a roll, (not shown), the strip being fed substantially at a right angle to the line of movement of the sealing strip, for instance near the periphery of roll E, and there the tearing strip is brought into contact with the gummed surface of the sealing strip, and then the strip F is cut off at a short distance from the sealing strip, producing a tearing tab T of suitable length, which is carried along with the sealing strip and applied to the wrapper surface, and secured in position thereon by the sealing strip without any adhesive engagement between the tearing tab and the wrapper surface.

The tearing strip may be severed by any convenient means, but desirably, the severing operation may be performed by heat, and conveniently heat may be applied by means of a hot wire W. Also, conveniently, the wire may be heated by an electric current, and for that purpose the two ends of the wire are joined to electrical conductors Z, which are in a suitable electric circuit, suitably controlled. The wire may be heated sufficiently to burn through the strip by proper application of electric current, and may then be brought into contact with the strip at the proper time to sever it, and produce a tearing tab T; or in some cases, the wire may remain in contact with the strip, and the severing may be accomplished by

heating the wire at the proper time, by properly controlling the electric current.

A suitable length of the sealing strip D may be severed at any convenient time, before or after application to the wrapper; but in the "successive" arrangement of handling the packages, as shown in Figure 5, which is desirable in some cases, adjacent packages may proceed for a certain distance connected by a continuous portion of the sealing strip; and in this performance of the method, the packages are desirably carried to another position 4, where the sealing strip may be additionally pressed down and secured by a pressing roll G.

The packages may then be carried on to another position, such as position 5, and the sealing strip may be severed adjacent to this position (or if preferred at a previous stage of the process) by any suitable means. Conveniently, the severing may be accomplished by an electrically heated wire, substantially as in the step of severing the tearing tabs, as previously described. A single hot wire J may be provided for merely severing the strip without the excision of any part of it, or preferably in some cases, as shown, the wire may have two parallel portions J and J′ in connection with each other, and connected to suitable electric conductors K, so that when the wire is heated and applied to the strip, a superfluous part *d* of the sealing strip will be removed.

The package is then in the condition shown in Figure 6, with the side wrapper properly sealed and the tearing tab in place, but with the ends *e* of the wrapper extending in cylindrical form beyond the end articles in the article row.

These projecting ends or margins *e* are then turned down against the adjacent surfaces of the boxes at the ends of the article column, and for this purpose, in one performance of the method, the packages may be supported on rollers K and rotated while they are also engaged by another roller L, which is provided with end flanges N arranged to overlap quite closely the ends of the article column and to bend or crimp down the projecting wrapper ends *e* against the ends of the adjacent boxes B, the projecting ends of the sealing strip being also turned in in the same operation. The wrapper ends are then in the condition shown at *e′*, Figure 8. The package is then removed from the rolls, and adhesive is applied at or near the ends of the package, a sufficient application of adhesive being indicated in Figure 9 in which a stripe Q of adhesive is placed about the end-edges of the cylindrically formed wrapper.

Suitable end caps U are then applied to the ends of the package. These caps may be of any suitably stiff and strong material having other necessary qualities for the purpose, card-board and fibre being good examples of suitable material. These caps are pressed or molded into the form shown, that is, they have flat bottoms corresponding to the end form of the package, in this case round, and a shallow circumferential wall or flange. These caps may be put in position by hand operations in an obvious manner, and will then be secured by the adhesive stripes Q; but more conveniently in certain cases they are positioned in a special manner with or without the aid of mechanical devices. In one preferred method of applying the end caps, as represented in Figure 9, they are arranged angularly in relation to the ends of the package, and with the package ends partially inserted into the caps; that is, the cap walls or flanges *v* are overlapped upon the ends of the package at one side thereof. The package with its partially applied caps is then moved forward laterally, usually by rolling, as indicated by the arrow, and at the same time, the end caps are moved between converging guide plates (not shown) so that, descriptively speaking, the ends of the package are "rolled" into complete engagement with the caps, which thereafter are secured by setting of the adhesive Q.

The complete package thus produced, as shown in Figures 10 and 11, consists of the enclosed article column C, the flexible and relatively thin paper wrapper S with nearly meeting or slightly overlapped longitudinal edges, the adhesively secured sealing strip D engaging portions of the wrapper at each side of its linear edges, or its single exposed edge, in the present specific form, and the relatively stiff and rigid end caps U secured by the adhesive stripes Q; and also, when desired, the tearing tab T, held in position by adhesive contact with the sealing strip, but free from actual connection with the wrapper.

When the method of making the package is properly performed, the wrapper fits smoothly and tightly, not only circumferentially about the package roll, but from end to end, and in combination with the relatively stiff end caps properly applied and secured, as described, the relatively thin wrapper paper becomes an element of a complete package which is exceedingly strong and stiff, resisting any ordinary and even extraordinary strains from necessary, or even from unduly rough, handling of the packages. This strength and rigidity are due to the fact that any strain tending to bend the package laterally at once brings the wrapping paper at one side of the package under tension, and the paper, even when comparatively thin and of only moderately strong texture, is amply capable of resisting strains of this sort. The entire wrapper structure, as compared with

enclosures heretofore used for articles of similar kinds, is very cheap, and in addition to cheapness and strength, it provides a satisfactory, completely-sealed, dirt-proof enclosure for the contents, and when desired, substantial moisture-proofing may be secured by providing suitable moisture-proof paper for the wrapper and end caps. An additional element of economy is provided by the adaptability of the package as so constructed for rapid and economical methods of production, either by hand operations, or more particularly, partly or entirely by machine operations, some of which are hereinabove suggested.

When a tearing tab, such as T, is incorporated in the package, opening of the package is facilitated by grasping a free end of the tab and pulling it outward, so that the tab tears away the attached portion of the sealing strip D. The free edge (or edges) of the wrapper is thus exposed, and since the wrapper is not attached to the contained articles, this wrapper edge may be easily grasped and the wrapper torn away from the package contents.

While I have described the package structure and method as particularly adapted for packaging round flat articles, such as snuff boxes, it is evident that the invention is not limited to the packaging of such articles, but may be employed for a great variety of articles, usually however, articles which have approximately flat parallel ends and are therefore capable of endwise, row-arrangement. But the articles need not necessarily be round since evidently in some embodiments of the invention, the packaged articles may have a square or other polygonal contour.

It is sufficient in most cases that the wrapper S be only wide enough to make approximately a single turn about the package contents; but evidently the wrapper may be arranged to make one turn, and then have a wider overlap than that shown in Figure 7; or the wrapper may pass several times about the article-row; and in either of these alternative arrangements, a free linear edge of the wrapper will be exposed for proper sealing by the sealing strip D.

While in describing the method I have referred to certain instrumentalities for the performance of certain steps, all steps of the process may be carried out without any instrumentalities, other than instruments of the simplest form. Also in describing certain instrumentalities for certain steps I do not intend to limit myself to those particular devices, but may employ any suitable devices for those or any other steps of the process. In fact, both as to the package and the method, variations may be made, too numerous to mention, and I do not limit myself to details except as specified in the claims.

What I claim is:

1. A package comprising a row of approximately rigid articles, a wrapper of thin and flexible sheet material having sufficient strength to resist tension strains surrounding the article row, and end caps of relatively stiff and strong material connected to end portions of the wrapper to serve as abutments for tension strains whereby the package is maintained in substantially rigid form without considerable bending.

2. A package comprising a row of approximately rigid articles, a wrapper of thin and flexible sheet material having sufficient strength to resist tension strains surrounding the article row, the wrapper being sealed by a longitudinal strip of sheet material, and end caps of relatively stiff and strong material connected to end portions of the wrapper to serve as abutments for tension strains whereby the package is maintained in substantially rigid form without considerable bending.

3. A package comprising a row of approximately rigid articles, a wrapper of thin and flexible sheet material having sufficient strength to resist tension strains surrounding the article row, the wrapper having a longitudinal edge overlapped upon an underlying portion of the wrapper, a sealing strip adhesively applied over said wrapper edge, and end caps of relatively stiff and strong material connected to end portions of the wrapper to serve as abutments for tension strains whereby the package is maintained in substantially rigid form without considerable bending.

4. A package comprising a cylindrical column of similar cylindrical, approximately incompressible individual containers in facial contact, a wrapper of thin and flexible sheet material having sufficient strength to resist tension strains surrounding said column and having overlapping longitudinal margins, end portions of the wrapper being turned in upon marginal portions of end containers in the column, a longitudinal sealing strip adhesively secured over an edge of the wrapper, and flanged end caps of relatively stiff and strong material adhesively connected over end portions of the wrapper and serving as abutments for tension strains, whereby the package is maintained in substantially rigid form.

5. A package, comprising a row of similar articles, a wrapper of relatively thin, flexible paper, an adhesively connected strip securing an edge of the wrapper, a tearing tab secured under the strip and free from the wrapper, serving to give ready access by tearing to a free edge of the wrapper, and end caps of relatively stiff and strong ma-

terial connected to end portions of the wrapper.

6. A package, comprising a row of similar articles, a wrapper of relatively thin, flexible paper, an adhesively connected strip securing an edge of the wrapper, a tearing tab secured under the strip and free from the wrapper and having a projecting free end, serving to give ready access by tearing to a free edge of the wrapper, and end caps of relatively stiff and strong material connected to end portions of the wrapper.

7. A package for a row of substantially flat, similar articles arranged in flatwise contact, comprising in cooperation with said articles a thin paper wrapper surrounding the article row, and having an overlapped edge along one side of the article row, a sealing strip overlying said edge and adhesively secured to the wrapper material near said edge, a tearing tab located between the sealing strip and the wrapper and free from the wrapper and having an end projecting beyond the sealing strip, the wrapper having end margins crimped in against the ends of the article row, and flanged end caps adhesively secured to portions of the wrapper near the ends thereof, and having flanges overlying the marginal end portions of the wrapper.

8. A method of packaging similar approximately flat articles, comprising the steps of arranging a number of the articles in a row, enclosing the article row in a wrapper, securing a free edge of the wrapper in place by a sealing strip, placing flanged end caps in angular relation to the ends of the package, and rotating the package and caps and simultaneously pressing the caps into full engagement with the package ends.

9. A method of packaging similar articles having substantially flat parallel sides, comprising placing a row of articles in flatwise contact, associating them with a wrapper, forming the wrapper about the sides of the package row, securing a marginal portion of the wrapper to an adjacent wrapper surface along one side of the package row, crimping in projecting ends of the wrapper against ends of the article row, placing flanged end caps in angular relation to the package ends and then rotating the package and end caps and simultaneously pressing the end caps into final position on the ends of the package.

10. A method of packaging comprising arranging a number of substantially flat articles in column form, associating them with a wrapper to form an assembly, repeating these operations and advancing a succession of such assemblies, forming the wrappers about the article rows, applying and adhesively connecting a sealing strip to connect the wrapper edges of successive assemblies, severing the strip between the assemblies and completing the formation of the packages.

11. A method of packaging comprising arranging a number of substantially flat articles in column form, associating them with a wrapper to form an assembly, repeating these operations and advancing a succession of such assemblies, forming the wrappers about the article rows, applying and adhesively connecting a sealing strip to connect the wrapper edges of successive assemblies, severing the strip between the assemblies, turning in projecting ends of the wrapper of a separated package against the ends of the article row, and applying and adhesively connecting flanged end caps to the ends of the package.

12. A method of packaging comprising arranging a number of substantially flat articles in column form, associating them with a wrapper to form an assembly, repeating these operations and advancing a succession of such assemblies, forming the wrappers about the article rows, applying and adhesively connecting a sealing strip to connect the wrapper edges of successive assemblies, severing the strip between the assemblies, rotating the separate packages and simultaneously crimping projecting end portions of the wrapper against ends of the article row, and finally applying end caps adhesively to the package ends.

13. The method of forming packages comprising associating a row of similar articles with a wrapper sheet and forming the wrapper sheet about the row, applying a sealing strip to the wrapper overlying an exposed edge thereof, and inserting a tearing tab laterally under the sealing strip during the application of the latter.

14. A method of forming packages comprising associating a row of similar articles with a wrapper, forming the wrapper about the row, applying an adhesively coated sealing strip to the wrapper over an exposed edge thereof, and applying a tearing tab to the adhesive surface of the sealing strip so that the tab is applied to the wrapper over said exposed edge and secured in position by the sealing strip.

15. A method of forming packages comprising associating a row of similar articles with a wrapper, forming the wrapper about the row, applying an adhesively coated sealing strip to the wrapper over an exposed edge thereof, supplying a continuous strip of material adjacent to the sealing strip, severing a portion of the strip to form a tearing tab, and securing the tab over the face of the wrapper under the sealing strip.

16. A method of forming packages comprising associating a row of similar articles with a wrapper, forming the wrapper about the row, applying an adhesively

coated sealing strip to the wrapper over an exposed edge thereof, supplying a continuous paper strip in the neighborhood of the sealing strip, severing a portion of the continuous strip by application of a heated element to form a tearing tab, and applying the tearing tab in adhesive connection with the sealing strip upon the face of the wrapper over an exposed edge thereof.

17. A method of forming packages comprising associating a row of similar articles with a wrapper, forming the wrapper about the row, applying an adhesively coated sealing strip to the wrapper over an exposed edge thereof, supplying a continuous paper strip in the neighborhood of the sealing strip, severing a portion of the continuous strip by application of an electrically heated element to form a tearing tab, and applying the tearing tab in adhesive connection with the sealing strip to the face of the wrapper over an exposed edge thereof.

18. In a method of packaging a row of similar articles, in which wrappers are placed on successive rows of the articles with a longitudinal edge of the wrapper closely adjacent to another portion of the wrapper along one side of the article row, the steps consisting in advancing a successive row of such package assemblies and supplying a tearing tab to each wrapper, over said longitudinal edge of the wrapper and securing the tearing tab by adhesively applying a sealing strip overlying said exposed wrapper edge.

19. In a method of packaging a row of similar articles, in which wrappers are placed on successive rows of the articles with a longitudinal edge of the wrapper closely adjacent to another portion of the wrapper along one side of the article row, the steps consisting in advancing a succession of such package assemblies, applying a continuous sealing strip adhesively to the wrapper surfaces of the packages overlying the exposed edges thereof, inserting tearing tabs between the sealing strip and the package surfaces and severing the sealing strip between two successive packages.

20. In a method of packaging a row of similar articles, in which wrappers are placed about successive rows of the articles with a longitudinal edge of the wrapper closely adjacent to another portion of the wrapper, the steps consisting in advancing a succession of such package assemblies and adhesively connecting a sealing strip overlapping the wrapper edges of successive packages, and severing the strip between successive packages.

21. A method of packaging articles comprising arranging articles in a row or column, enclosing the article in a thin, flexible wrapper, applying a sealing strip to seal the wrapper, inserting a tearing tab under the sealing strip, and applying end closures over the wrapper.

22. A method of packaging articles comprising arranging a plurality of articles in a column, enclosing the article column in a thin paper wrapper, applying a continuous sealing strip to seal the wrapper, advancing a continuous strip of tab material, inserting a portion of the tab material under the sealing strip upon the wrapper adjacent to the wrapper joint, severing a portion of the tab material to form a tearing tab, and completing the end closure of the package.

23. A method of packaging articles comprising arranging a plurality of articles in a column, enclosing the column in a thin flexible paper wrapper, arranging a plurality of such embryo packages in spaced axial alinement, applying a continuous sealing strip adhesively over edges of the wrappers of the packages, excising portions of the sealing strip between adjacent packages, turning in projecting end margins of the wrappers, and adhesively applying relatively stiff flanged end caps to the packages.

Signed at Chicago, in the county of Cook and State of Illinois this 29th day of December A. D. 1920.

JAMES C. THOM.