Dec. 4, 1934. J. S. STOKES 1,983,323

BOX

Filed Nov. 16, 1932 4 Sheets-Sheet 1

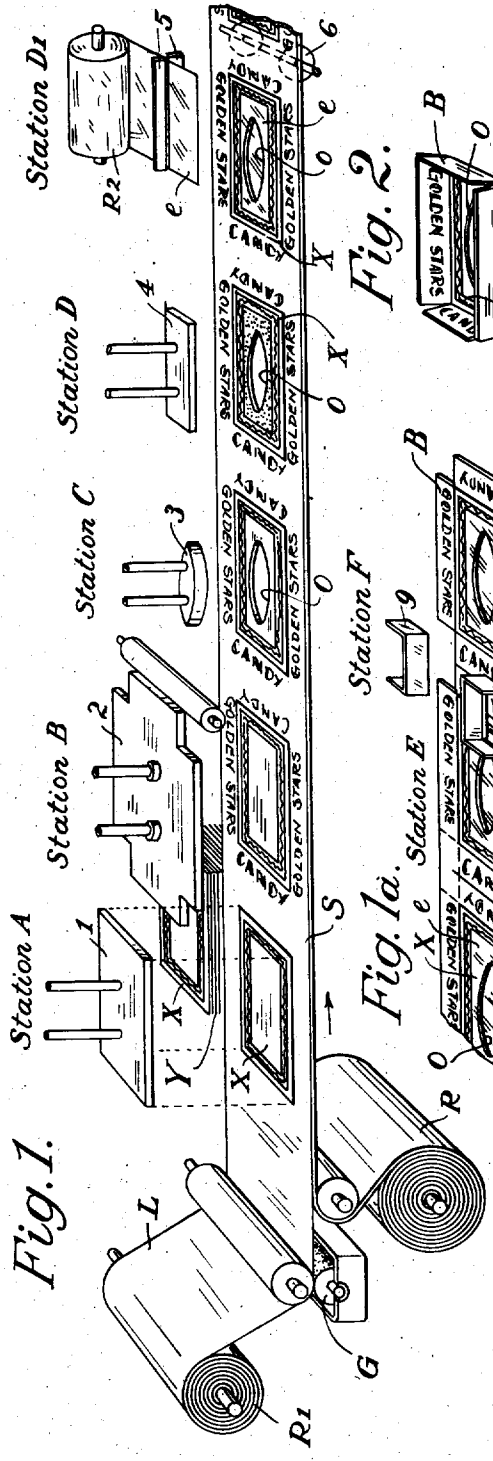



Fig. 1.




Fig. 2.

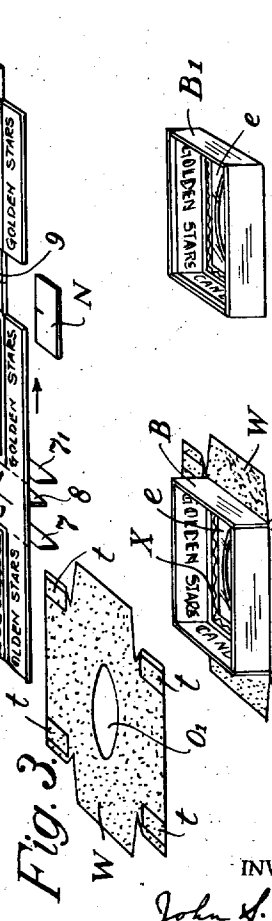



Fig. 1a.

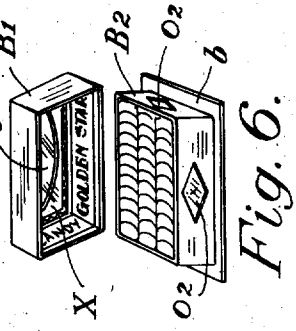



Fig. 6.




Fig. 5.




Fig. 4.




Fig. 3.

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BOX

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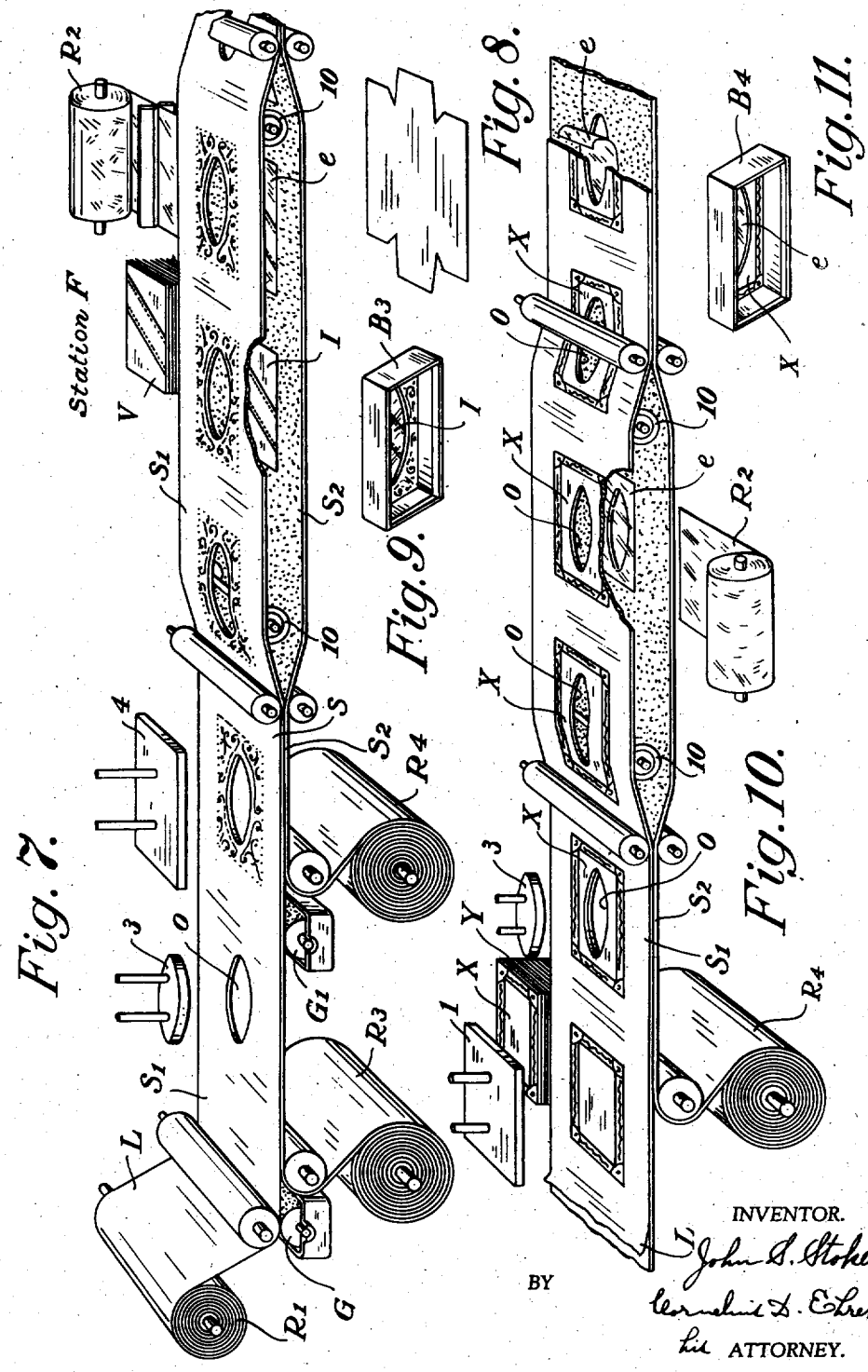



Fig. 7.

Fig. 8.

Fig. 9.

Fig. 10.

Fig. 11.

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Dec. 4, 1934. J. S. STOKES 1,983,323

BOX

Filed Nov. 16, 1932 4 Sheets-Sheet 3

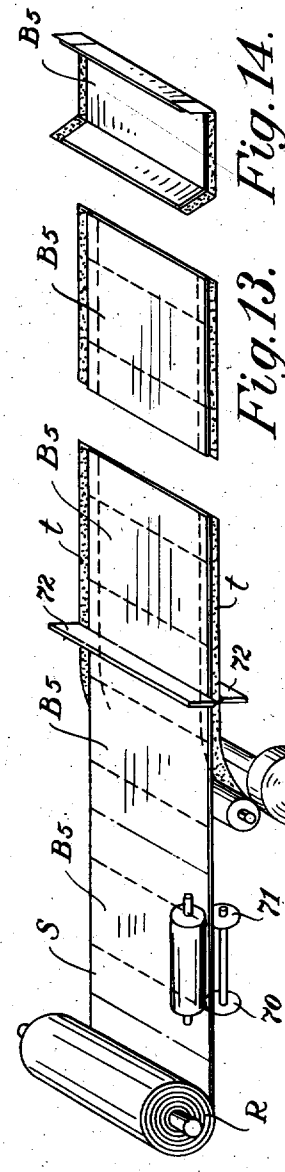



Fig. 13.




Fig. 14.

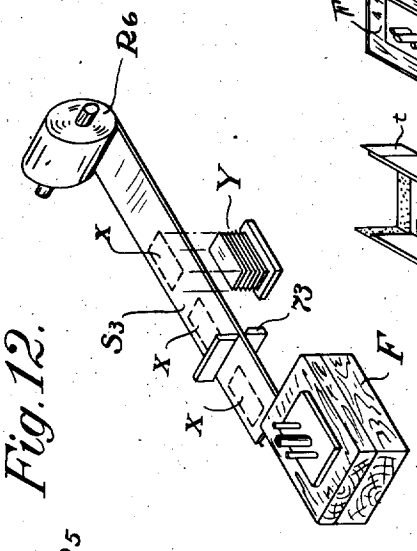



Fig. 12.

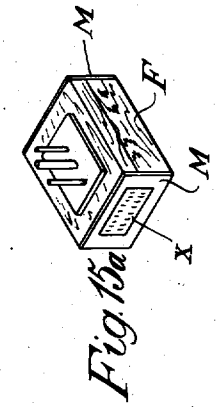



Fig. 15a.

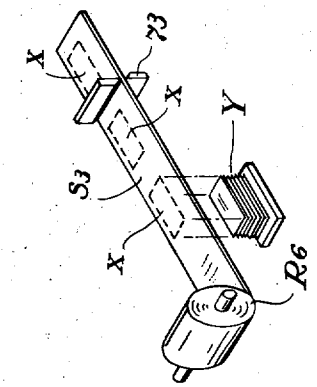



Fig. 15.

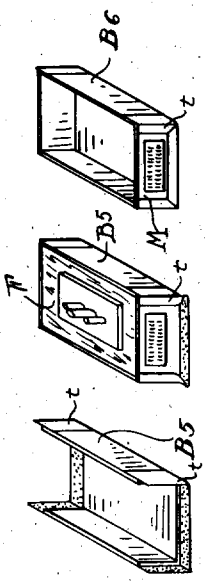



Fig. 16. Fig. 17. Fig. 18.

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BOX

Filed Nov. 16, 1932 4 Sheets-Sheet 4

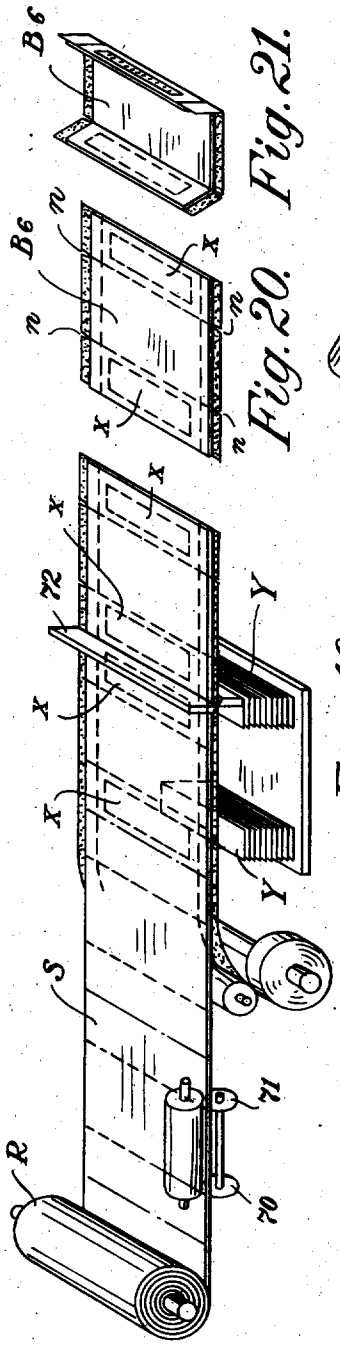



Fig. 19.

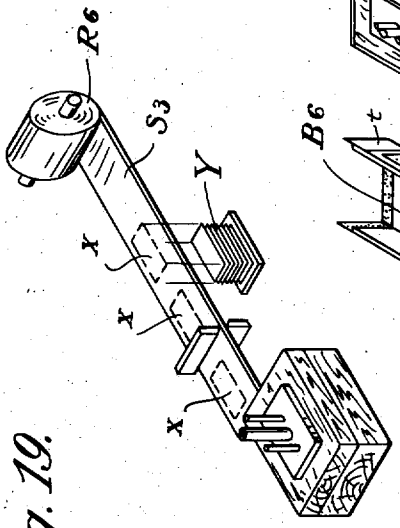



Fig. 22.

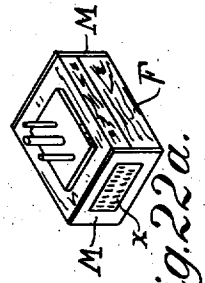



Fig. 22a.

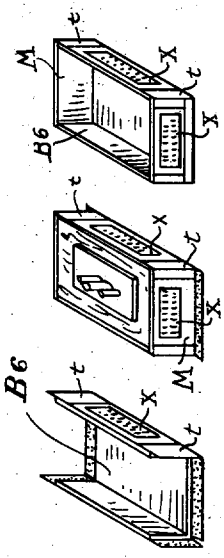
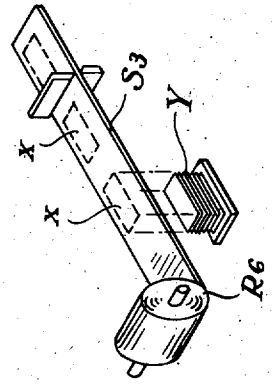



Fig. 23. Fig. 24. Fig. 25.




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Patented Dec. 4, 1934 1,983,323

# UNITED STATES PATENT OFFICE

1,983,323

## BOX

John S. Stokes, Huntingdon Valley, Pa., assignor to Stokes and Smith Company, Philadelphia, Pa., a corporation of Pennsylvania

Application November 16, 1932, Serial No. 642,838

20 Claims. (Cl. 93—36)

My invention relates to boxes, box covers, containers, and the like, hereinafter generically termed "boxes", and particularly to boxes having decorative features.

In accordance with my invention, the box blanks, or elements, are cut from a strip which has been subjected to one or more of the operations of punching, embossing, printing, etc., and to which has been attached, in event of punching, an article or material visible through the punched aperture, and/or material overlying the aperture and of transparent or translucent character, and are, after severance from the strip, formed into boxes, as by application of wrappers.

More specifically, in some forms of my invention, the windows are punched through the strip and then suitable transparent material is applied, so that the contents of a completed box made therefrom are visible through the window, whereas in other forms of my invention utilizing laminated strip, the punching may not extend through all laminations, and a decorative panel is inserted between the laminations to be visible through the window, preferably through an overlying insert of transparent material.

My invention further resides in the boxes and methods of making them hereinafter described and claimed.

For an understanding of my invention, reference is to be had to the accompanying drawings in which in perspective

Fig. 1 illustrates successive steps of forming a box blank from strip material.

Fig. 1*a* is a continuation of Fig. 1.

Fig. 2 shows box blank bent along its scoring.

Fig. 3 shows a wrapper.

Fig. 4 illustrates the box body or blank of Fig. 2 superimposed upon the wrapper of Fig. 3.

Fig. 5 is the completed box.

Fig. 6 shows a box and cover constructed in accordance with the invention.

Fig. 7 illustrates steps producing a laminated box with decorative insert.

Fig. 8 shows a wrapper.

Fig. 9 shows the completed box.

Fig. 10 shows a further modification utilizing laminated box material.

Fig. 11 illustrates the resulting box.

Figs. 12, 13 and 14 illustrate the formation from strip of the main components of three-piece boxes.

Fig. 15 illustrates the formation of labelled end components of a three-piece box.

Fig. 15*a* shows end components in position on a form block.

Fig. 16 illustrates the component of Fig. 14 bent into position.

Figs. 17 and 18 illustrate steps of forming a three-piece labelled box.

Figs. 19, 20 and 21 illustrate formation and labelling of the main components of three-piece boxes.

Figs. 22 and 22*a* are similar to Figs. 15 and 15*a*.

Fig. 23 shows the component of Fig. 21 bent into position.

Figs. 24 and 25 illustrate steps of forming a three-piece labelled box.

Referring to Figs. 1 and 1*a*, the strip S of suitable box material, as cardboard, strawboard, or the like, is removed from the roll R and fed, preferably by intermittent or step by step motion, in the direction generally indicated by the arrow. The width of the strip S corresponds to twice the height of the completed box plus the length, or width of the box bottom; in the example specifically illustrated, the width is equal to the width of the box bottom plus twice the height of the box sides. If desired, and preferably, suitable lining material, as the strip L of paper, is fed from the roll R1 into adhesive engagement with the upper surface of the box strip S which face is destined to form the interior of the box. The adhesive may be applied as by passage of the lining paper over the glue-roll G.

At station A along the path of movement of the strip of box material, lined or unlined, adhesive is applied as by the stencil 1 to the upper surface and thereafter, and preferably at the same station, a label X removed from a stack Y thereof is superimposed upon the strips for attachment thereto by the applied adhesive. The label is suitably decorated and/or provided with printed matter.

At station B there is applied to the strip of box material, as beyond the label, suitable or desired embossing, printing, or the like, as by the die or platen 2. It is understood of course, that the embossing or printing at station B may be substantially simultaneous with the application of glue or label at station A to that portion of the strip subsequently to arrive at station B.

At station C one or more openings are punched or cut out of the strips as by the punch 3 which in the particular form illustrated removes an oval segment from the strip and label.

At station D adhesive is applied to the strip, as by the stencil 4 at regions adjacent to the aperture or apertures for attachment of the element *e*, which may be a piece of cellophane, or other transparent or translucent material. The

element *e* may be applied at station D, or preferably, and as shown, cut from a roll R2 as by knives 5, and applied at station D1.

At any point along its path of movement, the strip S is scored longitudinally, as by the knives 6 to define the bottom and side panels of the box.

At station E the strip is transversely scored by the knives 7 and partially cut through by the knife 8 to define the end panels of the box, and at station F the strip is notched as by the knives 9, to remove the pieces N, which completes a blank B and severs it from the strip S. The cut made by the knife 8 is somewhat greater than the distance between the knives 9, 9, so that the knives 9, as aforesaid, effect separation of the blank B from the strip.

It is clear that the sequence of the steps can be changed, and/or some of them, as for example printing, labelling, etc., may be omitted, when a less elaborate box is desired.

At any given time, several box blanks are in the course of preparation and in various states of completion.

For making the main component of the three-piece box such as described and claimed in my Patent No. 1,862,205 granted June 7, 1932, in accordance with the method of the present invention, the cross scoring by knives 7 and notching by knives 9 is omitted and the strip is completely severed by knife 8 of suitably increased length; i. e., the blank is formed without end panels.

A completed one-piece blank, bent along its scoring, is shown in Fig. 2, and as there appears, the label X covers the bottom interior face of the blank, the printing or embossing appears on the interior faces of the vertical panels, and the element *e* spans the opening O in the bottom of the box.

To complete the box or cover, there is applied thereto a wrapper W, Fig. 3, having an opening O1 which is brought into register with the opening O in the box bottom, Fig. 4. Preferably, and if desired, the wrapper W may be provided with tabs *t* which, when the wrapper is applied as shown in Fig. 5, stand around the vertical corners of the box to strengthen them. As the wrapper panels preferably extend over the top of and down into the inside of the box, the strip L of lining paper when used, may be somewhat narrower than the width of the strip of box material, as the upper inside edge of the box is covered by the wrapper. Preferably, as the blanks are formed in succession, each without substantial delay is brought into engagement with a wrapper and the assembly manipulated to form a wrapped box. The preparation of wrappers may be concurrent with preparation of the blanks. Alternatively, the blanks, Fig. 2, may be stayed and thereafter wrappers applied to the stayed boxes.

Particularly, if the lining is omitted, the label may be of such size as to cover the vertical walls as well as the bottom.

While I have shown the openings or apertures punched in the bottom of the box, they may be made in any one or more of the box panels. For example, as shown in Fig. 6 the openings O2 may appear in either the side or end panels, or both, of the box B2. The extension bottom *b*, when used, is applied to a box blank after its severance from the strip and is attached thereto in the usual manner by an individual wrapper suitable for this type of work, which wrapper will have openings in register with the openings O2 in the box bottom. As shown in Fig. 6 the completed element of Fig. 5 may be used as a cover.

Referring to Fig. 7, the strip S of box material is formed from two strips of box material S1, S2 removed from rolls and coated, as by adhesive transferred from the glue roll G. In this particular modification only the upper strip S1 is punched to provide apertures or openings O. It is to be understood that as in the preceding modification, this punching operation may be preceded by application of labels, and preceded or followed by steps of printing, embossing, die-stamping or the like. Before the adhesive has set, and preferably substantially immediately after joinder of the strips, to insure adhesive on the adjacent faces of both strips they are separated as by the narrow rolls or disks 10.

At station F there is inserted between the separated laminations or strips S1, S2, in position to be visible through an opening O, a decorative element I, as a picture, emblem, "Apollo" metal, removed for example from a stack V thereof. If desired, there may also be inserted an element *e* of cellophane or the like, to overlie the decorative insert I. The strips S1, S2, are then again brought together, the adhesive on the strips holding the inserts in position. The remaining steps of scoring, notching, etc., are then effected to complete the blank as above described. If the insert is to be visible from the interior of the box, a plain wrapper, i. e., without the opening, as shown in Fig. 8, is applied to form a box B3 such as shown in Fig. 9. If the insert is to be visible from the exterior of the box, the box panels are bent in a reverse direction and a wrapper such as shown in Fig. 3 having an opening may be used.

As above stated, the box shown in Fig. 5 permits the contents of the box to be viewed through an opening or openings which extend completely through the box, and which is or are spanned by suitable transparent material applied to one side or the other of the blank while the blank is in strip form. The same end with somewhat better appearance may be accomplished with laminated strip by inserting the cellophane, or the like, between the laminations so that only the part thereof spanning the opening is visible.

Referring to Fig. 10 for example, the strips S1, S2 forming the composite box strip S are simultaneously punched as by die 3 to provide openings in alignment with each other and forming an opening O extending completely through the strip S. Thereafter the strips or laminations are separated as by the disks 10 for insertion of the inserts *e* of transparent material which span the opening. Thereafter, the laminations are again re-united, and the remaining operations of scoring, notching, etc., effected to form the box blanks. A wrapper, such as shown in Fig. 3 may be applied to complete the box B4, Fig. 11.

It is to be understood, that the boxes of Fig. 9 and/or Fig. 11 may be printed, embossed, or provided with labels, generally as explained in connection with Fig. 1, and all of which operations are performed while the box blanks, or box components are in strip form.

In Fig. 12, the strip S is cut to form the main component of a three-piece box. Specifically, the strip is scored transversely by knives 70 and 71 to define the bottom panels of blanks B5 and is subsequently cut between the scoring of adjacent blanks to separate the scored blanks or components from the strip.

If desired, and as shown, strips of tabbing material removed from rolls R5 thereof may be ad-

hesively applied along the opposite edges of the strip S so that the tabbing and scoring is effected while the blanks are in the strip. The knives 72 sever both strip S and the applied tabbing ensuring proper register of the tab strip *t* on the removed blank.

The minor or end blanks M for forming the ends of the boxes are cut from strip S3, removed from rolls R6 of any suitable box material, as by knives 73. Before the strip is severed, however, it is suitably labeled, embossed or printed generally as indicated by X. Specifically, labels removed from the stack Y thereof are applied to strip S3 at suitable regular intervals so as to appear in proper position on the minor components M when cut from the strip.

The end components may be transported to a form block F and there suitably held with the labels *x* against the block or away from the block as shown in Fig. 15*a*, depending upon whether they are to be visible from the inside or outside of the completed box. A main component, Fig. 14, is bent along the scoring to the shape shown in Fig. 16 and brought into box-forming relation with the minor or end components as in Fig. 17.

The projecting portions of the tab strips *t* are then folded into engagement with the ends *m* to form a box, Fig. 18. When the printing or labelling is to appear on the inside of the box, the components may be held in position by a wrapper such as shown in Fig. 8 with or without tabs.

Labels, printing, etc. may also be applied to the main components instead of or in addition to the labelling of the end components. As shown in Fig. 19, the labels *x*, *x* are applied to strip S to portions which subsequently, by severance, become the side panels of the main component B6 of a three-piece box. The label will appear on the inside or outside of the finished box depending upon which way the blank is scored and bent.

The end components M may be prepared from strip as previously described and may also be labelled while in the strip. For forming the type box shown in Fig. 25, the components are disposed so that the labelling *x*, printing, embossing or the like is visible from the box exterior, and they are held in position by application of the projecting parts of tabs *t* to the box ends. If desired, the projection tab strips may be notched as at *n*, to avoid the gusset fold of Figs. 17 and 18.

From the foregoing, it is clear that the strip of Figs. 1, 7 or 10 may be cut to form the main component of a three-piece box.

While I have illustrated and described preferred forms of and methods of practising my invention, it is to be understood that the invention is not limited thereto but is co-extensive in scope with the appended claims.

While all of the aforesaid operations may be performed manually, at least some of them may be performed by suitable known mechanism. For example, the feeding of lining to a strip, the scoring and notching of a strip, etc., may be performed by mechanism shown in copending application Serial No. 655,194, filed February 4, 1933. The preparation of the wrappers may be effected by mechanism of the type shown in Rider Patent No. 1,857,260 granted May 10, 1932 and wrapping of the boxes may be effected by the machine shown in Federwitz Patent No. 1,541,255 granted June 5, 1925.

What I claim is:

1. The method of making box elements which comprises effecting adhesive engagement between a strip of box material and a strip of lining material, punching the composite strip to provide apertures, and severing the strip intermediate the apertures to form lined box elements.

2. The method of making box elements which comprises feeding a strip of box material along a path, at a zone of said path, punching the strip to form a succession of regularly spaced apertures, at a subsequent zone of said path, applying light-passing material to span said apertures in succession, thereafter transversely severing the strip to form box elements, and without substantial delay forming boxes from said elements in succession.

3. The method of making box elements which comprises feeding a strip of box material along a path, at a zone in said path applying individual labels in succession to said strip, at a subsequent zone, punching the label and strip to provide a succession of apertures in the labeled strip, and thereafter severing the strip to form box elements.

4. The method of making box elements which comprises punching a strip of box material to provide apertures, effecting adhesive engagement with another strip of box material to form a laminated strip, inserting decorative elements between laminations of said strip opposite said apertures, and thereafter severing the strip to form box elements.

5. The method of making box elements which comprises punching a laminated strip of box material to provide apertures therethrough, temporarily separating the laminations and inserting transparent material to span the apertures, and thereafter severing the strip to form box elements.

6. The method of making box elements which comprises effecting adhesive engagement between strips of box material to form laminated strip, punching at least one of the strips to provide apertures, before setting of the adhesive, temporarily separating the laminations and inserting an element to span the aperture, reuniting the laminations, and thereafter severing the strip to form box elements.

7. The method of making boxes which comprises punching a strip of box material to provide apertures, scoring the strip to define box panels, cutting the strip to form box blanks each having an apertured wall, and thereafter applying individual wrappers to the box blanks in succession.

8. The method of making boxes which comprises applying individual labels to one side of a strip of box material, scoring the reverse side of the strip to define panels, and severing the strip between the labels to form labeled box components.

9. The method which comprises effecting adhesive engagement between a strip of lining material and a strip of box material to form a lined strip, applying individual labels to the lined face of the strip, scoring the reverse side of the strip between the labels, and severing the strip to form labeled, scored box components.

10. The method of making boxes which comprises applying individual labels to one side of a strip of box material, scoring and notching the strip, severing the strip to form one-piece box blanks, and thereafter applying individual wrappers to the unlabeled side of the box blanks.

11. The method of making boxes which comprises embossing or printing one side of a strip

of box material, scoring and notching the strip, severing the strip to form one-piece box blanks, and thereafter applying individual wrappers to the plain side of the box blanks after severance from the strip.

12. The method of making boxes which comprises applying individual labels to one side of a strip of box material, applying printing to said side of the strip beyond the labels, notching and scoring the strip, severing the strip to form box elements, and applying individual wrappers to the unlabeled side of the box elements.

13. The method of making boxes which comprises applying individual labels to one side of a strip of box material, punching the strip to provide apertures, thereafter securing material to the strip to span the aperture, thereafter severing the strip between the labels to form box elements, and applying individual wrappers to the unlabeled side of the box elements.

14. The method of making boxes which comprises punching apertures through a strip of box material, applying transparent material to span the apertures, severing the strip to form box elements each having an apertured wall, and applying to the box elements in succession individual wrappers having apertures in alignment with said punched apertures of the box elements.

15. The method of making boxes which comprises applying individual labels to a strip of box material, punching apertures through the strip of box material, adhesively securing transparent sheet material to span the apertures, thereafter severing the strip between the labels to form box elements, and applying to the box elements individual wrappers having apertures aligned with said apertures of the box elements.

16. The method of making boxes which comprises severing a laminated strip to form box elements, prior to the severance the steps of punching at least one strip to provide apertures, and temporarily separating the laminations for insertion of elements spanning the apertures, and applying individual wrappers to the box elements after their severance.

17. The method of making boxes which comprises punching a lamination of strip box material to provide apertures, attaching elements to be viewed through said apertures, severing the strip to form box elements, and applying individual elements to the unpunched sides of the box blanks.

18. The method of making boxes which comprises punching apertures through a laminated strip of box material, temporarily separating the laminations for insertion of transparent material spanning the apertures, severing the strip to form box elements, and applying to the box elements individual wrappers having apertures aligned with the apertures of the box elements.

19. The method of making boxes which comprises punching a strip of box material to provide apertures, scoring the strip to define box panels, cutting the strip to form box blanks each having an aperture in the panel destined to form the top or bottom of a box, and thereafter shaping and covering the blanks in succession with individual wrappers to form boxes.

20. The method of making boxes which comprises effecting adhesive engagement between a strip of lining material and a strip of box material to form a lined strip, applying individual labels to the lined face of the strip, severing the strip to form lined, labeled box components, shaping the components so that the labels are on the inside of the partially-formed boxes, and applying individual wrappers to cover the outside of the labeled boxes.

JOHN S. STOKES.

## CERTIFICATE OF CORRECTION.

Patent No. 1,983,323. December 4, 1934.

JOHN S. STOKES.

It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction as follows: Page 3, line 141, claim 9, strike out the the words "between the labels" and insert the same after "strip" in the same line and claim; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 5th day of March, A. D. 1935.

(Seal)

Leslie Frazer
Acting Commissioner of Patents.

of box material, scoring and notching the strip, severing the strip to form one-piece box blanks, and thereafter applying individual wrappers to the plain side of the box blanks after severance from the strip.

12. The method of making boxes which comprises applying individual labels to one side of a strip of box material, applying printing to said side of the strip beyond the labels, notching and scoring the strip, severing the strip to form box elements, and applying individual wrappers to the unlabeled side of the box elements.

13. The method of making boxes which comprises applying individual labels to one side of a strip of box material, punching the strip to provide apertures, thereafter securing material to the strip to span the aperture, thereafter severing the strip between the labels to form box elements, and applying individual wrappers to the unlabeled side of the box elements.

14. The method of making boxes which comprises punching apertures through a strip of box material, applying transparent material to span the apertures, severing the strip to form box elements each having an apertured wall, and applying to the box elements in succession individual wrappers having apertures in alignment with said punched apertures of the box elements.

15. The method of making boxes which comprises applying individual labels to a strip of box material, punching apertures through the strip of box material, adhesively securing transparent sheet material to span the apertures, thereafter severing the strip between the labels to form box elements, and applying to the box elements individual wrappers having apertures aligned with said apertures of the box elements.

16. The method of making boxes which comprises severing a laminated strip to form box elements, prior to the severance the steps of punching at least one strip to provide apertures, and temporarily separating the laminations for insertion of elements spanning the apertures, and applying individual wrappers to the box elements after their severance.

17. The method of making boxes which comprises punching a lamination of strip box material to provide apertures, attaching elements to be viewed through said apertures, severing the strip to form box elements, and applying individual elements to the unpunched sides of the box blanks.

18. The method of making boxes which comprises punching apertures through a laminated strip of box material, temporarily separating the laminations for insertion of transparent material spanning the apertures, severing the strip to form box elements, and applying to the box elements individual wrappers having apertures aligned with the apertures of the box elements.

19. The method of making boxes which comprises punching a strip of box material to provide apertures, scoring the strip to define box panels, cutting the strip to form box blanks each having an aperture in the panel destined to form the top or bottom of a box, and thereafter shaping and covering the blanks in succession with individual wrappers to form boxes.

20. The method of making boxes which comprises effecting adhesive engagement between a strip of lining material and a strip of box material to form a lined strip, applying individual labels to the lined face of the strip, severing the strip to form lined, labeled box components, shaping the components so that the labels are on the inside of the partially-formed boxes, and applying individual wrappers to cover the outside of the labeled boxes.

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Signed and sealed this 5th day of March, A. D. 1935.

(Seal)

Leslie Frazer
Acting Commissioner of Patents.