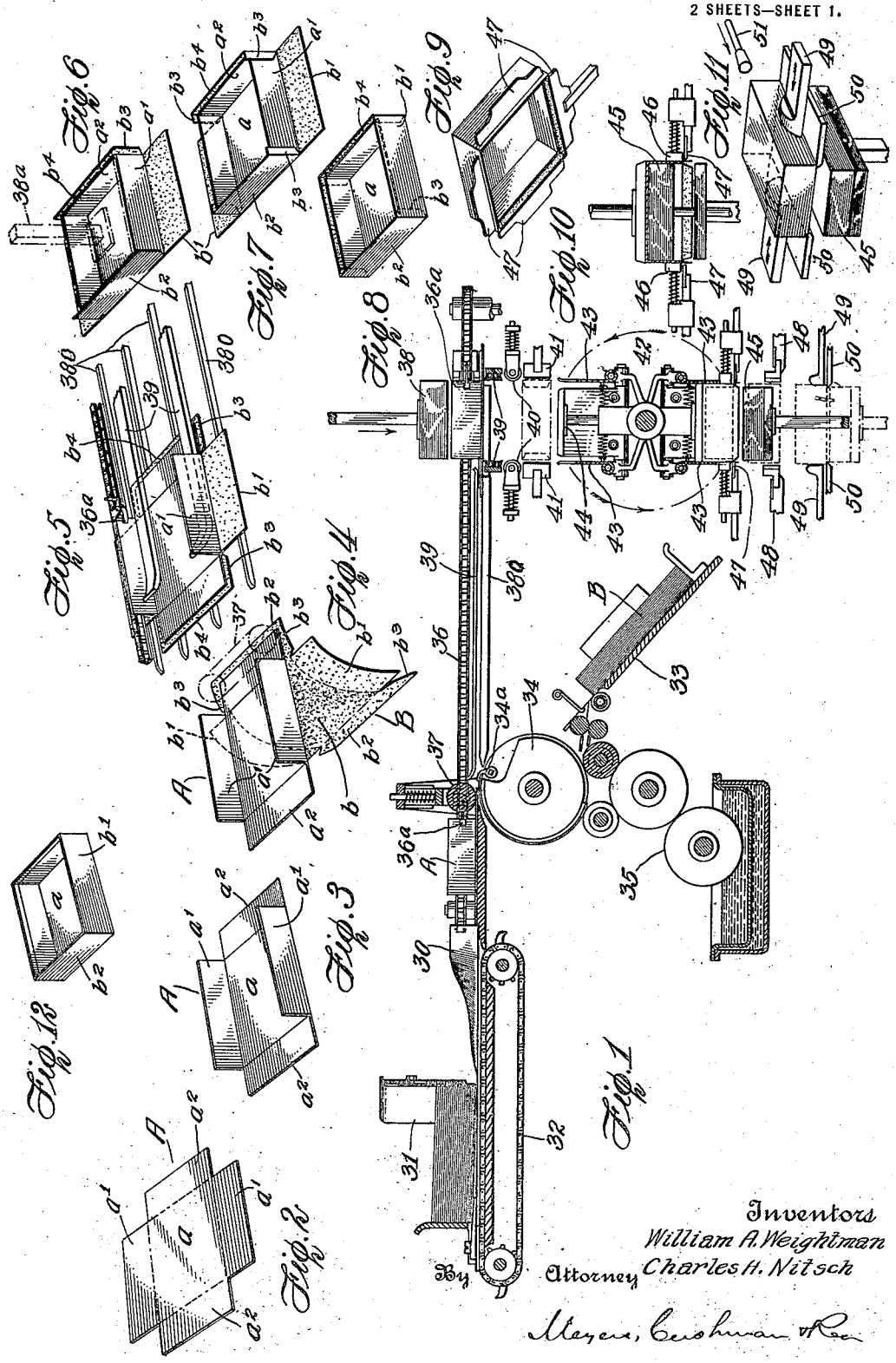
W. A. WEIGHTMAN AND C. H. NITSCH.

ART OF PRODUCING COVERED BOX SHELLS.

APPLICATION FILED JUNE 29, 1917.

1,341,954. **Patented June 1, 1920.**

2 SHEETS—SHEET 1.



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2 SHEETS—SHEET 2.

Fig. 18,

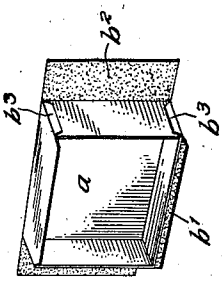


Fig. 17,

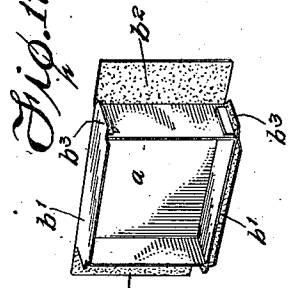


Fig. 16,

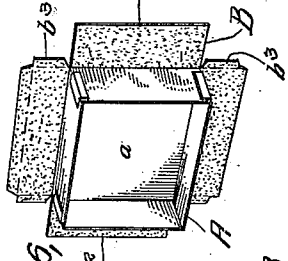


Fig. 15,

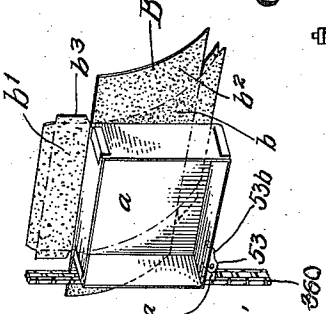


Fig. 14,

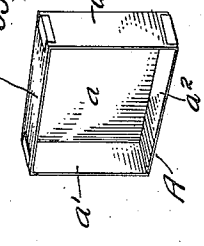


Fig. 19,

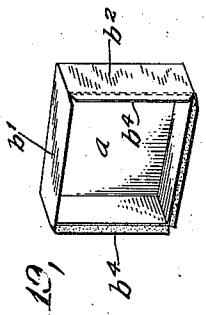


Fig. 21,

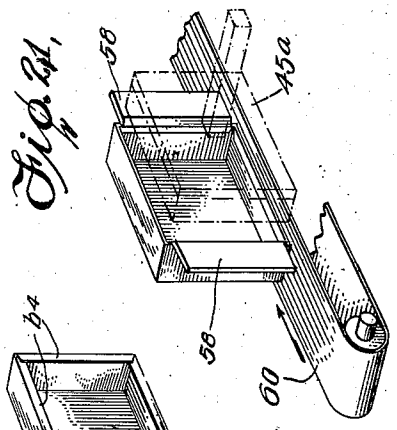


Fig. 13,

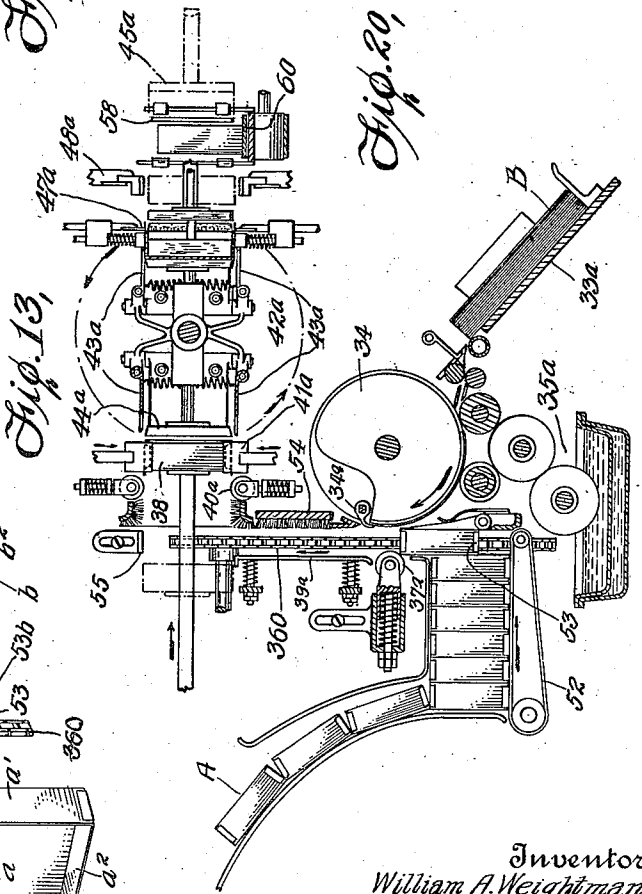


Fig. 20,

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UNITED STATES PATENT OFFICE.

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ART OF PRODUCING COVERED BOX-SHELLS.

1,341,954. Specification of Letters Patent. Patented June 1, 1920.

Application filed June 29, 1917. Serial No. 177,833.

To all whom it may concern:

Be it known that we, WILLIAM A. WEIGHTMAN and CHARLES H. NITSCH, both citizens of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented new and useful Improvements in the Art of Producing Covered Box-Shells, of which the following is a specification.

This invention relates to the art of producing covered box shells.

Box shells are of two general types, viz: shells in which the side and end walls are secured and stayed together at their corners independent of the wrapper or cover—known generally as "stayed" box shells,—and shells in which the walls are held in position by the wrapper or cover, this latter type being generally known as "unstayed" shells. Shells of both types are often made from a single blank and for commercial use, are covered with a wrapper adhesively connected thereto, the wrapper generally covering the bottom, side and end walls, and turned-in over the edges of the walls. The covering or wrapping operation is generally provided mechanically by the use of suitable mechanism or mechanisms, thus providing for a large output. Due to the differences mentioned in the two types of shells, the mechanisms for completing the covered shell of the two types differ in certain respects, the general practice, briefly stated, being approximately as follows:—

Stayed box shells.—These shells are generally produced independently of the covering mechanism, being brought to the latter mechanism properly shaped and stayed, the covering mechanism applying the covering blank thereto. The wrapper or cover is generally in the form of a blank—the "cornered" type of blank being that generally employed—which has one face adhesively coated when brought into the covering mechanism by suitable means, generally by a transfer mechanism which delivers the wrapper or cover to a predetermined position in the covering mechanism. The uncovered shell is generally placed on a form constituting a part of the cover-applying mechanism, after which the bottom of the shell is brought into contact with the cover blank, thus starting a cycle of operations on the cover blank which successively turn up the side wings, tuck-in the end laps, fold up the end wings, turn over and tuck-in the marginal edges, and apply pressure to various faces to produce proper adhesive connection, after which the covered box is removed from the mechanism.

Unstayed box shells.—This type depends more particularly on the cover blank for producing the "stayed" effect, and therefore has its initial treatment slightly different from that of the stayed shell. The shell in this type, is generally incomplete—unstayed—when applied to the form, the turned-up walls being held to the form by the operator or by clips. The covering operation then proceeds generally as in the stayed shell type.

In both types it is the practice to manually position the shell or shell blank in the form-block.

As will be understood, successful covering of the shell is dependent on the proper registration of the shell and cover blank at the beginning of the cover-applying operation; the proper assembly of the shell and the cover blank is of the greatest importance.

In prior practice this has generally been provided manually. In some cases the adhesive is applied to the cover blank manually; in other cases by an adhesive-applying mechanism. Where the assembly is manual, the operator applies the shell to the adhesive-coated face of the cover blank, visually registering the bottom of the shell with the complemental portion of the cover-blank; the assembly is then manually positioned on the form-block. In cases where manual assembly is not had the coated cover blank is transferred to the covering mechanism and the shell applied to the form block, assembly taking place by movement of the form block.

While manual assembly enables accurate registration by the skilled operator, the capacity is, of course, limited by the ability of the operator or operators to provide the assembly registration with rapidity, thus requiring skilled labor.

Where the assembly is provided in the covering mechanism, the cover blank must be accurately positioned in the mechanism, the form block—carrving the shell—having

a fixed path of movement, since successful covering is dependent on proper registration of the shell with the wrapper or cover blank when these elements are initially brought into contact in the covering mechanism; where the cover blank is of the "cornered" type, this registration is a positive requirement in order that the succeeding operations will apply the cover blank smoothly and properly to the shell. Since in general practice, the adhesive coating of the cover blank is provided mechanically, and the coated blank then transported to its position in the cover mechanism, the proper movement of the transfer mechanism—where provided mechanically—is of importance. Since the transfer mechanism has a fixed movement the proper positioning of the blank must depend on its being properly positioned in the adhesive-applying mechanism in order that the transfer mechanism may properly receive it, so that accurate positioning of the blank in the covering mechanism is obviously dependent on the blank being properly positioned in advance of its delivery to the transfer mechanism. Furthermore, the particular action which takes place on the coated blank during its transfer, produced by the conditioning of the adhesive during travel, must be substantially uniform with each blank; and, in addition, the transfer of the cover blank from the adhesive-applying mechanism to the covering mechanism involves extended movement of the relatively-thin cover blank with its adhesively-coated face. As the proper registration of shell and blank is dependent on the positioning of the blank in the covering mechanism after being subjected to the effects of these several operations, it will be obvious that the progress of the blank to position in the covering mechanism is had only by successfully passing the several critical stages, ending with the vital requirement that when delivered to the covering mechanism, the position of the cover blank must be in accurate registration with the path of travel of the shell in order that when contact is had between the shell and blank, the blank will be in such position that the covering instrumentalities will apply it properly to the shell.

The present invention is designed to facilitate the general covering operation, increasing capacity and decreasing cost of manufacture by decreasing the general difficulties present in the assembly of the shell and cover-blank. This is had primarily by assembling the shell and the cover blank prior to the entrance of these elements into the covering mechanism, thus permitting registration of the elements to be provided independent of the covering mechanism, permitting the assembly to be bodily transferred into the covering mechanism and to a position therein where the shell portion of the assembly will be accurately alined in the path of travel of the form block, dispensing with any necessity for positioning the shell on the form block prior to movement of the latter, thereby simplifying the several mechanisms which may be required where the operation is entirely mechanical.

In carrying out this general feature, we prefer to produce the assembly practically at the time when the cover blank receives its adhesive coating, and preferably while the blank is positively supported, thus reducing, if not entirely eliminating, the travel of the coated blank in the transfer mechanism as an independent element. This enables registration to be had in advance of reaching the covering mechanism, and enables the shell or shell blank to operate as a carrier in transferring the cover blank to its position within the covering mechanism, practically insuring that the proper registration will be had in such mechanism, owing to the ability to more effectively position a folded element than one in sheet form.

The preferred arrangement is to employ a rotating support or platen for the cover blank during the adhesive-applying operation and positioning the shell or shell blank on the cover blank and in proper registration therewith while the cover blank is on this supporting platen. This enables accurate registration to be had in a simple manner and at a point where certain of the above mentioned difficulties are rendered ineffective to affect the covering operation. In addition, the cover blank is applied progressively to the shell or shell blank instead of substantially simultaneously as under present practice.

In addition, where the operation is intended to produce unstayed shells, adhesive connection of shell blank and cover blank extends throughout the major portion of these blanks and is provided practically at the start of the usual transfer operation, so that not only does the shell blank act as a carrier for the cover blank, but the adhesive connection of the two blanks will have advanced to an extent before the assembled parts are positioned in the covering mechanism, the amount of advance being determined by the length of time involved in the travel of the transfer mechanism. Furthermore, the tendency of the cover blank to curl is considerably reduced by the fact that but a small portion of the cover blank is unattached to the shell blank.

By employing the shell or partially folded shell blank as the carrier for the cover blank during travel to the covering mechanism, the pulling or pushing strains may be placed on the shell portion instead of on the relatively-thin cover blank. And in addition, the transfer mechanism may act to re-

tain the folded relation of the wings where the unstayed shell operation is employed.

The invention also contemplates means by which the general operation is made practically automatic, reducing the cost of labor, and increasing the general capacity.

To these and other ends, therefore, the nature of which will be readily understood as the invention is hereinafter disclosed, said invention consists in the improved methods, and the construction and combination of parts hereinafter more fully described, illustrated in the accompanying drawings, and more particularly pointed out in the appended claims.

In the accompanying drawings, in which similar reference characters indicate similar parts in each of the views:

Figure 1 is a view, generally diagrammatic, showing a mechanism adapted to carry out the broad principles of the present invention in connection with the production of covered box shells of the "unstayed" type.

Fig. 2 is a perspective view of one form of shell blank.

Fig. 3 is a perspective view showing the blank partially folded preliminary to the assembly.

Fig. 4 is a perspective view indicating the manner in which the cover blank and shell blank are assembled.

Fig. 5 is a detail view indicating the manner in which the assembly is transferred to the covering mechanism.

Figs. 6, 7, and 8 are detail perspective views showing the results of successive operations of the covering mechanism.

Fig. 9 is a detail view indicating elements for turning in the marginal portions.

Fig. 10 is a detail sectional view indicating mechanism for turning in the marginal portions.

Fig. 11 is a detail view indicating the manner in which the covered shell is discharged from the covering mechanism.

Fig. 12 is a perspective view of a covered shell.

Fig. 13 is a diagrammatic view of apparatus operative in connection with stayed box shells.

Fig. 14 is a detail view of one form of stayed box shell.

Fig. 15 is a detail view indicating the manner in which the shell of Fig. 14 and the cover blank are assembled.

Fig. 16 indicates the assembly in the form in which it is transferred and positioned in the covering mechanism.

Figs. 17 to 20 inclusive, indicate successive stages of the covering operation.

Fig. 21 is a detail view indicating the manner in which the covered shell is discharged from the covering mechanism.

As shown in the drawings, the fundamental principles of the present invention are applicable for use in connection with either "stayed" or "unstayed" box shells. As heretofore indicated, the structures differ in some respects in operating with shells of the different types. In describing the general operations, we indicate the general operation first in connection with the

"Unstayed" box shells.

As will be readily understood, the shell blank for "unstayed" boxes may have many different forms, the covering blank—which may be of the "cornered" type—being complemental in form to the particular configuration of the shell blank being used. The present invention is applicable for use with any type of shell or cover blanks, the drawings, for purposes of illustration, showing the use of a common form of shell blank, indicated at A, and scored to provide a bottom a, end wings a', and side wings a^2. The blank is first folded to cause the end wings a' to extend perpendicular to the plane of the bottom, any suitable mechanism being employed for this purpose, a simple arrangement being the use of folding blades 30 positioned in the path of travel of the blank from the blank feeding mechanism. The latter may be of any desired type, the arrangement shown in the drawing being of a suitable magazine 31 for the blanks, positioned over an endless carrier 32 which is arranged to remove the blanks successively from the magazine and carry them past the folding blades 30 and into position where they are taken up by the transfer mechanism. Obviously, any suitable blank delivery mechanism may be employed; for instance, the magazine 31 may be positioned away from carrier 32 and a segregating mechanism be employed to deliver the blanks individually to a suitable carrier which will advance the blank through the folding mechanism indicated by blades 30 and position the blank at the desired point with respect to the transfer mechanism.

The cover blank, indicated at B, is of proper configuration, having the bottom b, end wings b', side wings b^2, and end laps b^3, and is delivered by a suitable delivery mechanism, indicated generally at 33 to a rotating blank-supporting platen 34 having grippers 34^a, platen 34 being properly arranged relatively to the adhesive-applying mechanism, indicated generally at 35, in such manner that the blank received by the platen is subjected to the action of the adhesive-applying mechanism while the blank is being supported by and moving with the platen, the grippers 34^a having the usual operation and being manipulated to release the advance end of the coated blank at the proper time.

The transfer mechanism is of suitable

type, the drawings indicating it as in the form of an endless chain 36 carrying grippers 36^a which are adapted to engage the turned-up end wings a' of the shell blank, carrier 36 and the gripping devices 36^a being so arranged that the blank A will be gripped and begin its advance movement at such time that the advance end of blank A is brought into proper registration with the advance portion of the cover blank while both blanks are advancing, as shown in Fig. 4, blank A having a path of movement which practically places its lower face in position to contact with the outer face of the cover blank. A suitable pressure-applying device, indicated as a roll 37 may be employed to provide proper pressure on the shell blank as it contacts with the cover blank. Through proper timing of carrier 36 and platen 34, accurate registration will be provided.

As will be seen from Fig. 4, the assembly of the shell blank and cover blank is had by a progressive contact of the two blanks as the blanks advance, thus insuring a proper adhesive connection between the contacting faces of the two blanks.

As shown in Fig. 5, the assembly thus produced has the outer faces of the bottom and side wings of the shell blank entirely covered, end laps b^3 and marginal portions b^4 of the cover blank being exposed; as end wings a' extend angular to the plane of the bottom, they are free from connection with the end wings b' of the cover blank. The major portion of the cover blank is thus adhesively connected to the shell blank while the assembly is being transferred, so that possibility of curling of the cover blank is greatly reduced.

Any preferred form of supporting means for the assembly while being transferred may be employed, that shown being in the form of members 38 on which the assembly may rest, plates 39 being positioned above the plane of the bottom of the shell at this time, as shown in Fig. 5. This arrangement practically maintains the bottom and side wings of the shell blank in a single plane, and at the same time permits the end wings to extend upward while being transferred. As will be seen, grippers 36^a grip the upstanding end wings a', so that the pulling strains are placed on the shell blank which is generally of heavier stock than the cover blank; and since the gripping mechanism is applied to a part of the shell blank which is not covered at this stage, practically no liability of damage to the cover blank is present; consequently the cover blank may be of light stock, since it is not subjected to any transfer strains in positioning the blank in the covering mechanism.

The chain 36 preferably carries a plurality of the gripping devices 36^a, these being of suitable type and preferably adapted to provide for gripping action at a predetermined point in their paths of travel and a release of the grip at a different predetermined point, the operating mechanism at this latter point being so arranged as to leave the assembly in proper position in the path of travel of a form block 38 in the covering mechanism, which block is adapted to contact with the bottom a, and serves as the form about which the parts are folded during a portion of the operation of the covering mechanism. The release of the gripping mechanism is therefore arranged so as to position the assembly in such manner that the downward movement of the form block will cause it to register with the bottom a of the assembly.

The structure of the covering mechanism is shown diagrammatically, the specific constructions being omitted, the particular arrangement shown in the drawings being approximately that of a well-known machine for this purpose, it being understood, however, that the invention is not limited to use in connection with this particular type of apparatus, since it is equally adaptable for use with covering mechanisms of other types, and the invention is to be construed as including all types of covering mechanisms adapted to provide the covering operations.

In the form shown, the form block 38 is first brought into contact with the assembly by an inward movement (shown as downward in the drawings), the further movement of the form block carrying the assembly into operative relation with suitable wipers 39 and rollers 40 which act to turn up the side wings of the assembly (Fig. 6). Further advance movement then positions the assembly in operative relation to turn in fingers 41 which turn in the end laps b^3 of the cover blank (Fig. 7), after which the assembly passes into a rotatable frame, indicated generally at 42 and which carries fingers 43 adapted to turn up the end wings b'. Frame 42 carries a shiftable plunger structure 44 against which the assembly is brought during the travel of the assembly into the frame, the inward movement of the upper end of plunger structure 44 moving the opposite end of such structure outwardly for purposes presently described.

The assembly, when so positioned within frame 42 practically has the configuration shown in Fig. 8 with the outer faces of the bottom, side and end wings covered by the cover blank, the marginal portions of the latter, however, projecting above the several wings.

After form block 38 has been withdrawn, frame 42 is rotated to locate the positioned assembly diametrically opposite the point

where the assembly was received by the frame (the position shown at the bottom of the frame in Fig. 1, the opposite portion of the frame thus being presented in position to receive the succeeding assembly). This places the open top of the assembly opposite a second form block 45, the latter being preferably of the two-member type—a well-known arrangement. One section of the form block 45 is then introduced into the assembly—Fig. 10—after which suitable presser elements 46 contact with the outer face of the assembly, and turn in fingers 47 (Fig. 9) are caused to operate to turn in the marginal edges of the cover blank, thus placing these edges in the path of movement of the other section of form block 45, the inward travel of this second section carrying the inturned marginal edges into and adhesively securing them to the inner face of the wings, this operation taking place in advance of the discharge of the assembly from frame 42.

Discharge of the assembly is provided by the introduction of the succeeding assembly into the upper portion of the frame, the discharged assembly remaining on form block 45 and being carried downward into the path of presser members 48 which provide pressure to the wings to insure a proper adhesion between the marginal edges and the shell wings, after which the assembly is moved into the path of operation of presser members 49 which contact the sides of the covered assembly and which coöperate with stripping elements 50 to strip the covered shell from form block 45, positioning the shell opposite a pusher 51 which is adapted to contact with one end of the covered shell and push it out of the path of travel of block 45.

As will be readily understood, mechanism of this type provides for practically automatic operation, and since there is no material travel of the coated blank independent of the shell blank, the speed of travel of the cover blank forms no material controlling factor in the operation of the apparatus, since the cover blank, instead of moving as a thin sheet, as in the prior mechanisms, forms part of a composite assembly which gives a sufficient body to prevent damage to the blank.

The application of the general invention to the covering of

Stayed box shells

differs to some extent from that employed in connection with the unstayed type, due mainly to the fact that the shell is preformed instead of produced by the apparatus.

Fig. 13 indicates diagrammatically one form of apparatus which may be employed with the stayed box type, the covering mechanism being more or less similar to that shown in Fig. 1. As heretofore pointed out, the form shown is simply illustrative of an apparatus adapted to provide the covering operation.

In this form the shells are fed into the transfer mechanism in any suitable manner, the drawings showing the use of a conveyer 52 which advances a succession of shells into the path of travel of an endless chain 360 which, in this instance, is shown as having inwardly projecting fingers 53 which are adapted to contact with the rear upstanding wing of the shell, fingers 53 being formed of a rigid portion 53^a and a pivoted portion 53^b preferably yieldably supported.

Conveyer 52 advances a shell into the path of travel of a finger 53, the latter then advancing the shell so as to bring the bottom of the shell into registration contact with the cover blank supported on platen 34, the cover blank being then progressively applied to the bottom of the shell by the advancing of shell and blank, as shown for instance in Fig. 15, the continued travel of the assembly bringing it into the operating zone of a wiping brush structure 54 to cause a positive adhesion of blank and shell. The assembly thus completed, indicated in Fig. 16, is advanced to position within the covering mechanism, a stop 55 in the path of travel of the shell acting to limit the advance movement and properly locate the assembly in position to coöperate with form block 38 as previously described. This positioning without affecting the movement of carrier 360, is provided by the yieldable member 53^b, the shift in the path of travel of carrier 360 from a straight line into the curved portion which travels on one of the supporting wheels for the carrier, withdrawing the rigid portion 53^a from its supporting position with respect to the shell and placing the support entirely on the yieldable member 53^b, the result being that when further advance movement of the shell is prevented by contact with stop 55, member 53^b of the finger will yield to permit continued movement of the chain or carrier without affecting the position of the assembly in the covering mechanism.

After the assembly is positioned in the covering mechanism, the general operation heretofore described with respect to the unstayed type of shell, is followed, it being understood, of course, that since all of the wings of the shell were turned up when the shell was formed, the side wings b^2 of the cover blank only will be turned up instead of the side wings of both blanks as referred to in the previous description. The results of the various operations are shown in Figs. 17 to 20, it being understood that the marginal edges shown in Fig. 20 will be tucked-in as heretofore pointed out, and the

pressure applied, after which the covered shell is stripped by the use of stripping blades 58, thus permitting the shell to drop on to a conveyer 60.

The specific structures disclosed herein are more or less illustrative only, it being understood that any suitable mechanism for carrying out the broad fundamental features of the present invention are considered as falling within the scope of the present invention, the invention embracing all such structures, combinations, arrangements of parts or mechanisms as may fall within the spirit and scope of the invention as expressed in the accompanying claims when broadly construed.

As heretofore pointed out, the invention is adapted to be used with any type of box shell formation, angular or otherwise.

Obviously, the invention is not limited to structures which operate to move the elements or assembly in the particular directions indicated in the drawings, this being a matter for machine designing and construction and obviously falling within the skill of the designer. It is also to be understood that, if desired, the transfer carrier 36 or 360 may be duplicated so as to operate on both sides of the travel path of the assembly.

As will be understood the advance movements of the shell or shell element and the cover blank while assembly is being had, are at synchronous speeds.

Having thus described our invention, what we claim as new is:

1. The method herein described of covering a box shell element with an adhesively attached cover blank, which latter has a body portion and integral side and end wings shaped to cover the exterior walls of the shell element with marginal portions turned over the edge of and affixed to the interior walls of the shell, which consists in facially supporting such a cover blank in curved or arched condition, then advancing the thus supported blank and applying adhesive to its exposed face, then imposing and pressing a face portion of the box shell element to be covered upon and in registration contact with a complemental portion of the adhesive face of the curved or arched and supported cover blank to adhesively assemble the shell element and its cover blank, and thereafter moving the assembly away from the support and folding the unattached portions of the cover blank about and adhesively attaching them to the remaining exterior walls of the box shell and the free marginal portions thereof to the interior walls of said shell.

2. The herein described method of covering a box shell element having a body portion and side and end wall members, with an adhesively-attached cover blank having a body portion with side and end wings shaped to cover the exterior walls of the shell and marginal portions to be inturned over the edges of and affixed to the interior walls of the shell, which consists in facially-supporting and advancing such a cover blank in an arched or curved condition, applying a coating of adhesive to a face of the thus curved and supported blank, advancing the box shell element to be covered and bringing a selected edge portion thereof into registration contact with a selected companion portion of the supported cover blank, said contacting edge portion being sufficiently removed from an edge of the cover blank to leave a free marginal portion to be thereafter affixed to an interior wall of the shell, then advancing the assembled shell element and its cover blank and causing portions thereof to become adhesively attached during such advance, thereafter completing adhesive attachment of the cover blank to the remaining uncovered walls of the box shell, and finally inturning the marginal portions of the cover blank over the marginal edges of and affixing them to the interior walls of the shell.

3. In a method of covering a box shell element having a body portion and side and end wall members with an adhesively attached cover blank having a body portion and side and end wings shaped to cover the exterior walls of the shell and marginal portions to be inturned over the marginal edges of and affixed to the interior walls of the shell, the steps which consist in simultaneously advancing the box shell element and the cover blank along separate travel paths which meet at a tangent point in their travel to bring the shell into registration attachment with the cover blank along a transverse line removed from the extreme advance edge of said blank, continuing the advance of the shell element and its cover blank and adhesively attaching portions thereof during such continued advance, and thereafter affixing the side and end wings of the cover blank to the side and end walls of the box shell element and the marginal edges of the blank to the interior walls of the shell element.

4. A machine for covering a box shell element having a body portion and side and end wall members, with an adhesively attached cover blank having a body portion and side and end wings shaped to cover the exterior walls of the shell element and with marginal portions to be inturned over the marginal edges of and affixed to the interior walls of the said element, embodying a rotatable member for facially supporting and advancing such a cover blank, means for applying a coating of adhesive to a face of the blank while on said supporting member, means for advancing the box-shell element

to be covered and bringing a selected edge portion thereof into superposed registration attachment with a selected companion portion of the cover-blank while on the supporting member with the said contacting edge portion sufficiently removed from the advance edge of the cover blank to leave a free marginal portion to be thereafter affixed to an interior wall of the shell, means for advancing the assembled shell element and its cover blank and causing superposed portions thereof to become adhesively attached during such advance, mechanism for thereafter completing adhesive attachment of the cover blank to the remaining uncovered walls of the box shell, and devices for inturning the marginal portions of the wings of the cover blank over the marginal edges of and affixing them to the interior walls of the shell.

5. In a machine for covering a box-shell element with a covering blank having a body portion and side and end wings shaped to cover the bottom, side and end walls of said element, comprising a rotatable assembling support, means for feeding covering blanks singly thereto, means for applying adhesive to a face of each blank while on said support, means for successively advancing shell elements to be covered and for causing a predetermined portion of each element to make registration contact with a selected portion of the cover blank while the latter is still on the assembling support, said means also operating to advance the assembly away from said support, mechanism for thereafter adhesively affixing other portions of the cover blank to other exterior walls of the shell element, and devices for turning marginal portions of the cover blank over marginal edges of the element and for affixing them to the interior walls thereof.

6. In the art of covering box shells of the unstayed type, the method of preparing the shell element and blank for covering mechanism operation, which consists in adhesively connecting the bottom and predetermined wing faces of the unstayed shell blank in registration contact with complemental portions of the cover blank, and transferring the assembly to the covering mechanism with the remaining shell blank wing faces and cover blank free from connection.

7. In the art of covering box shells of the unstayed type, the method of preparing the shell element and cover blank for covering mechanism operation, which consists in adhesively coating a face of the cover blank, assembling the shell and cover blanks by presenting the shell blank into registration contact with the adhesively coated face and with predetermined wings of the unstayed shell blank extending angular to the plane of the bottom and remaining wings of such blank, whereby said angular wings will be maintained out of contact with the cover blank, and transferring the assembly to the covering mechanism.

8. In the art of covering box shells of the unstayed type, the method of preparing the shell element and blank for covering mechanism operation, which consists in adhesively coating a face of the cover blank, assembling the shell and cover blanks by presenting the unstayed shell blank into registration contact with the adhesively coated face and with predetermined wings of the shell blank extending angular to the plane of the bottom and remaining wings of such blank, whereby said angular wings will be maintained out of contact with the cover blank, and adhesively connecting said angular wings and the cover blank during the covering operation.

9. In a machine for covering the exterior walls of box shells with a cover blank having a body portion and integrally connected side and end wings and in combination, means for supporting and advancing a cover blank, means for applying a coating of adhesive to one face of the blank while so supported, means for causing an attached portion of the shell to contact with a selected portion of the blank in registered relation and for adhesively attaching the contacting portions thereof while the blank is upon its support, and transporting means for bodily transporting the assembled shell and its blank.

10. In a machine for covering the exterior walls of box-shells with a cover blank having a body portion and integrally connected side and end wings and in combination, means for supporting a cover blank, means for applying a coating of adhesive to one face of the blank while so supported, means for adhesively assembling selected portions of the shell and blank in registered relation while the blank is upon its support, cover-applying instrumentalities for adhesively attaching wings of the blank to upstanding walls of the box shell, and transporting mechanism for transferring the assembled shell and blank to the said applying instrumentalities.

11. In the art of covering box shells or the like each having a cornered cover blank having a body portion and side and end wings, a support for an adhesively coated cover blank, means for assembling the shell element and cover blank while the blank is on said support, said means causing adhesive connection of a face of the shell element and a complemental portion of the adhesive face of the cover blank, and covering mechanism adapted to receive the assembly.

12. In the art of covering box shells or the like each with a cornered cover blank having a body portion and side and end wings, a support for the cover blank, ad-

hesive-applying mechanism operative on the blank while on the support, means for bringing a face of the shell element into registration contact with a complemental portion of the adhesive face of the blank while the latter is so supported, and covering mechanism including a form block into which the assembly is positioned in the path of travel of the form block.

13. In the art of covering box shells or the like each with a cover blank having a body portion and side and end wings, means for assembling the shell element and adhesive-faced cover blank with a face of the element in registration contact with a complemental portion of the adhesive face of the blank, said means including a rotatable blank-supporting platen, a carrier for advancing the shell element in a plane above and coincident with the path of travel of the supported blank, and means whereby the advance movements of the shell element will present the latter in registration contact with the blank while on and during rotation of the platen.

14. In the art of covering box shells or the like each with a cornered cover blank having a body portion and side and end wings, means for assembling the shell element and adhesive-faced cover blank with a face of the element in registration contact with a complemental portion of the adhesive face of the blank, said means including a rotatable blank-supporting platen, a carrier for advancing the shell element above and in a plane coincident with the path of movement of the supported blank, and means whereby the advance movements of the shell element will present the latter in registration contact with the blank while on and during rotation of the platen, and covering mechanism, said carrier being operative to position the assembly in said mechanism.

15. In the art of covering box shells of the unstayed type, a support for the cover blank, means for adhesively coating a face of the blank while supported, means for presenting the bottom and opposite wing faces of the unstayed shell blank to complemental portions of the adhesive face of the supported cover blank and adhesively connecting them in registration contact, and means for maintaining other wings of the shell blank out of contact with the cover blank.

16. In the art of covering box shells of the unstayed type, a support for the cover blank, means for adhesively coating a face of the supported blank, means for moving opposite wings of the shell blank out of the plane of the bottom of the blank, and means for assembling the blanks by presenting faces of the bottom and unmoved wings of the shell blank to complemental portions of the adhesive face of the cover blank.

17. In the art of covering box shells of the unstayed type, a rotatable blank-supporting platen, adhesive-applying mechanism for coating a face of the cover blank while on and during platen movements, means for advancing a shell blank and for moving opposite wings of the shell blank out of the plane of the blank bottom, and means for advancing the shell blank with its remaining wings in the plane of the bottom and for assembling the blanks by presenting faces of the bottom and said latter wings in registration contact with complemental portions of the adhesive face of the supported cover blank.

18. In the art of covering box shells of the unstayed type, covering mechanism, transfer mechanism, means for advancing the shell and cover blanks individually into assembling relation, adhesive-applying mechanism, and means for correlating the operations of said mechanisms to provide the following sequence of operations: turn-up opposite wings of the shell blank and apply adhesive to a face of the cover blank prior to assembly, position the bottom and remaining wing faces in registration contact with complemental portions of the adhesive face of the cover blank, advance the assembly into the covering mechanism, and completing the covering manipulations.

In testimony whereof we have hereunto set our hands in presence of two subscribing witnesses.

WILLIAM A. WEIGHTMAN.
CHARLES H. NITSCH.

Witnesses:
EARL E. SCHAEFFER,
SILAS E. CHILD.