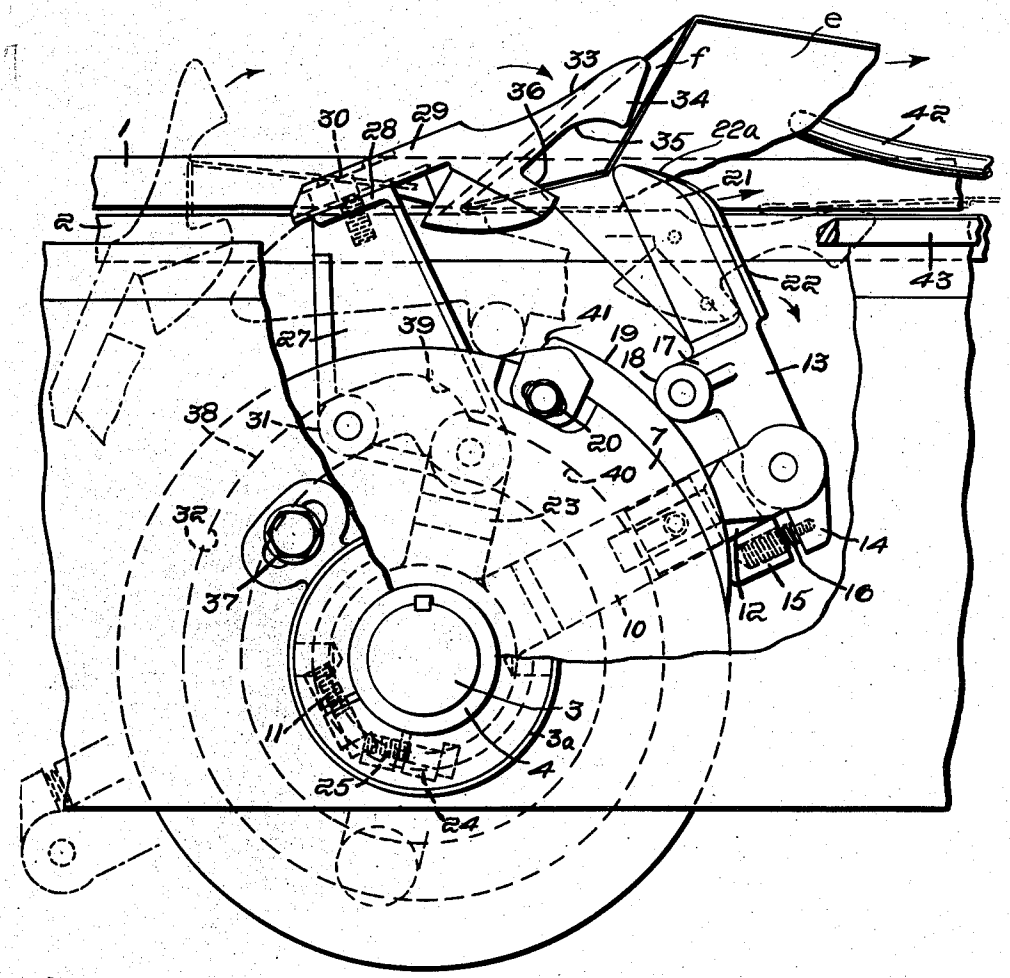
Aug. 15, 1950 F. H. CHAPMAN 2,519,111

MACHINE FOR FOLDING BOX BLANKS AND THE LIKE

Filed Oct. 8, 1945 3 Sheets-Sheet 1

Fig. 1.




Inventor:
Fred H. Chapman,
by Head Smith Ostrander
Attorneys

Aug. 15, 1950 F. H. CHAPMAN 2,519,111

MACHINE FOR FOLDING BOX BLANKS AND THE LIKE

Filed Oct. 8, 1945 3 Sheets-Sheet 2

Fig. 2.

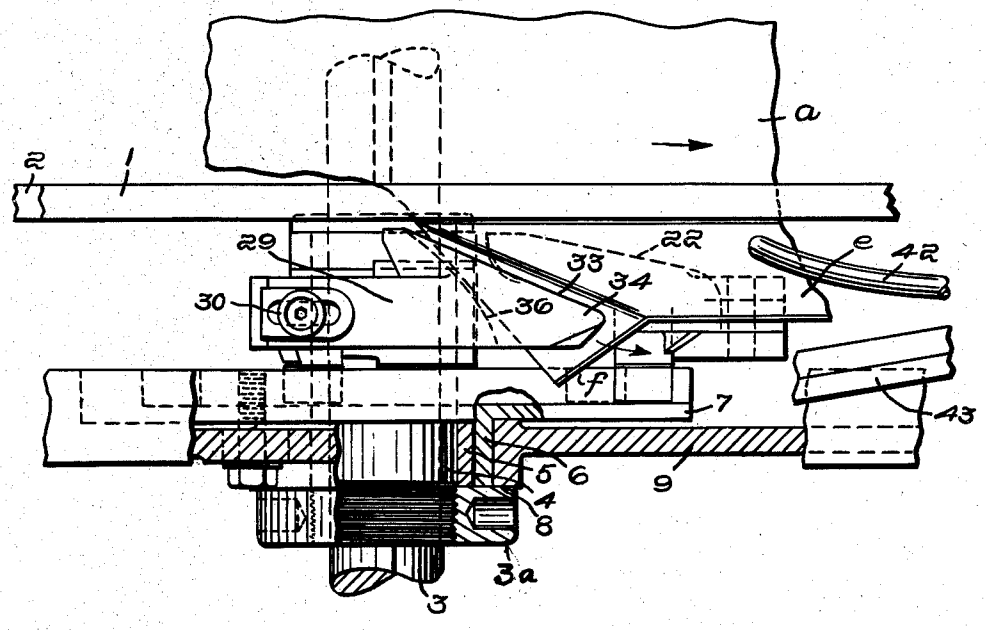



Fig. 3.

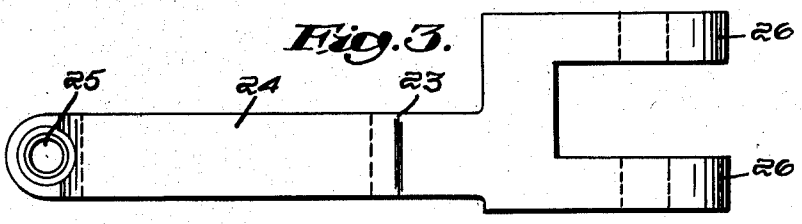
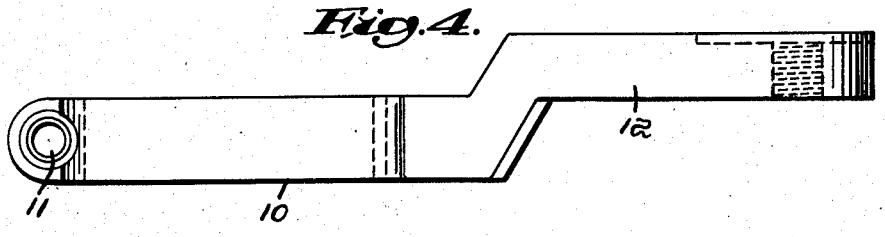



Fig. 4.




Inventor:
Fred H. Chapman,
by Heard Smith & Tennant
Attorneys

Aug. 15, 1950 F. H. CHAPMAN 2,519,111

MACHINE FOR FOLDING BOX BLANKS AND THE LIKE

Filed Oct. 8, 1945 3 Sheets-Sheet 3

Fig. 5.

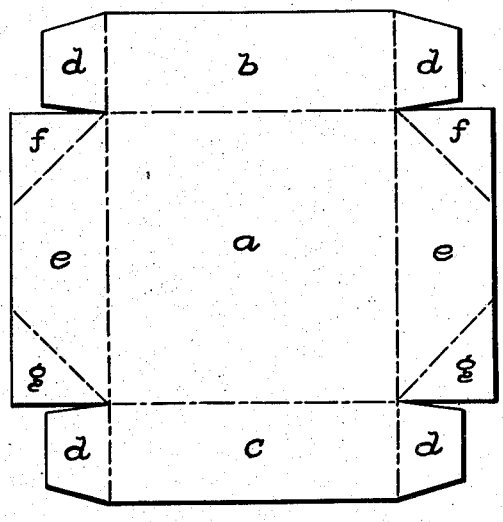



Fig. 6.

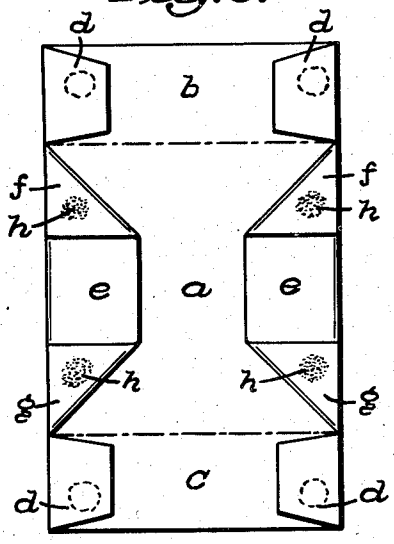



Fig. 7.

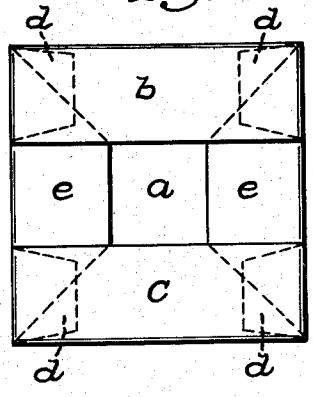
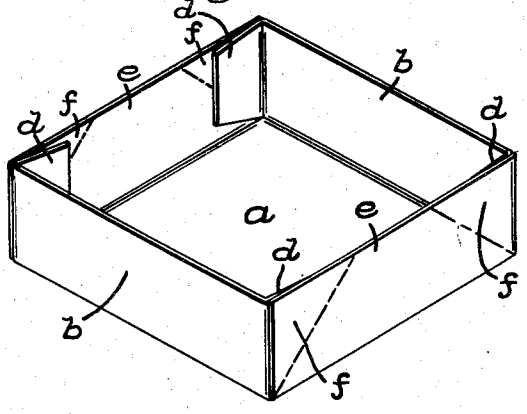



Fig. 8.




Inventor:
Fred H. Chapman,
by Heard Smith & Tennent
Attorneys

Patented Aug. 15, 1950 2,519,111

# UNITED STATES PATENT OFFICE

2,519,111

## MACHINE FOR FOLDING BOX BLANKS AND THE LIKE

Fred H. Chapman, Pepperell, Mass., assignor to The International Paper Box Machine Company, Nashua, N. H., a corporation of New Hampshire

Application October 8, 1945, Serial No. 620,912

17 Claims. (Cl. 93—49)

1

This invention relates to improvements in mechanisms for folding tabs upon diagonal crease lines of the side walls of box blanks and the like and concerns principally the folding of the rear or trailing tabs of the blank.

More specifically the invention relates to improvements in blank folding mechanisms of the type disclosed in my prior Patent No. 2,261,018 granted October 28, 1941 for Machine for Folding Blanks. In that construction means are provided for folding the rear tab of a blank along diagonal crease lines upwardly over and against the upper face of the side wall to produce what is known as an "outfold" tab.

The principal object of the present invention is to provide mechanism which is capable not only of producing an "outfold" tab, but also more particularly for producing an "infold" tab by raising the side wall and bending the tab downwardly and inwardly against the under face of the side wall, the purpose of the infolding tab being, when used in box manufacture, to provide a collapsible box which when assembled and collapsed will occupy a rectangular space of less area than that of usual boxes of equal capacity having outfold tabs and which will require fewer folding operations than boxes of equal capacity having outfold tabs which are so constructed as to be collapsible into an equally smaller rectangular space.

The present invention is designed to be embodied in a box folding machine in which a series of suitably spaced blanks are caused to travel continuously along a horizontal zone, known as a "paper line," between upper and lower guides with the sides of the blank, which are defined by longitudinal fold lines, projecting beyond the respective guides and provided adjacent their ends with diagonal crease lines upon which the tabs defined thereby are so folded that when glued to complementary fold flaps on the ends of the blank an assembled box will be produced which is adapted to be collapsed for storage and shipment.

One of the objects of the invention is to provide tab folding mechanism in which the rate of forward movement of the tab folder will increase at the time of folding beyond its normal speed.

Another object of the invention is to arrest the movement of the folder after its folding operation to permit the tab of the traveling blank to pass from beneath the folder.

Another object of the invention is to provide means for depressing the folder below the paper line after completion of the tab folding operation in advance of, and out of interference with, the next traveling tab.

2

Another object of the invention is to provide a lifter for bending upwardly the side of the traveling blank having means to engage said side at or near the diagonal crease of the tab and in coperation with the folder to insure accurate folding of the tab downwardly, and inwardly upon the crease line toward the under face of the side wall.

A further object of the invention is to provide mechanism for actuating the lifter in coordination with the folder and which will raise the lifter at increased speed during the desired period of operation of the folder, thereby to bend the tab sharply and accurately on the diagonal fold line.

A further object of the invention is to provide means for respectively depressing the folder and the lifter below the paper line out of the path of the next traveling blank.

Another feature of the invention comprises means for securing the folder supporting arm and the lifter supporting arm respectively to the rotating member to enable them to be adjusted circumferentially relatively to each other properly to position them relatively to the traveling blanks.

These and other objects and features of the invention will more fully appear from the following description and the accompanying drawings and will be particularly pointed out in the claims.

A preferred embodiment of the invention herein disclosed is shown in the accompanying drawings which illustrate the mechanism for folding the rear or trailing tab of one side of a box.

In the drawings:

Fig. 1 is a view, partly in side elevation and partly in vertical section, showing the essential parts of the invention adapted to be embodied in a blank folding machine of the type described, and also showing in dotted lines different positions of the folding and the side lifting means;

Fig. 2 is a view mainly in plan and partly in horizontal section of the construction shown in Fig. 1;

Fig. 3 is an enlarged detail plan view of the offset arm upon which the support for the folder is hinged;

Fig. 4 is an enlarged detail view of the offset arm upon which the lifter mechanism is mounted;

Fig. 5 is a plan view of a form of box blank having sides provided with diagonally creased tabs adapted to be folded by the mechanism herein described;

Fig. 6 is a view showing the infolded tabs of the inwardly folded sides and flaps on the end panels of the blank folded inwardly, the tabs and/or the panels being spotted with adhesive for

uniting them to form an assembled box structure;

Fig. 7 is a plan view of the assembled box in collapsed position; and

Fig. 8 is a perspective view of the erected box.

Inasmuch as mechanism for forwarding a series of blanks and that required to fold the forward tabs of the blank upon diagonal crease lines, either to produce an outfold or an infold, may be of a usual character, no illustration thereof is necessary and the drawing therefore is confined to mechanism for folding the rear or trailing tabs of the sides of the blank.

Inasmuch as mechanism for folding diagonal crease tabs on both sides of a box are similar only one mechanism is described herein, it being understood that the other is similar but so reversed as to provide right hand and left hand folds, the mechanism for folding the right hand being alone illustrated herein.

In order to enable the operation of the machine more readily to be understood a form of box blank having diagonally creased tabs and the manner in which they are folded is illustrated in Figs. 5–8 inclusive.

The box blank illustrated comprises a base *a* having front and rear panels *b* and *c* forming the ends of the box and having at their respective ends flaps *d* and side panels *e* each having a front diagonally creased tab *f* and a rear or trailing diagonally creased tab *g* as shown in Fig. 5. As illustrated in Fig. 6 the flaps *d* of the end panels *b* and *c* are folded inwardly upon the respective panels *b* and *c*. The tab *f* and *g* of the side panels *e* are folded against the under face of the side panels and the side panels *e* then folded upon the base *a*. Glue spots *h* are applied to the respective flaps *d* or the infolded tabs *f* and *g* so that when adhesively connected an assembled box is produced which is shown in collapsed position in Fig. 7 and which may be readily erected to the position illustrated in Fig. 8.

The folding machine comprises longitudinally extending upper and lower parallel bars 1 and 2 between which the body of the blank is caused to travel by usual mechanism with the sides of the blank projecting beyond the bars 1 and 2. The mechanism for infolding the rear or trailing tab *g* of the blank comprises a rotatable member having an arm movable through part of its rotation in parallelism with and in the direction of movement of the traveling blank with a folder head support hinged to the arm, a folder plate mounted on said support to engage and fold the tab upon the crease line, and means for increasing the rate of movement of the folder head at the time of folding beyond its normal peripheral speed.

The rotatable member is also provided with an arm located in advance of the folding mechanism having hinged to it a spring actuated lifter for bending upwardly the side of the blank into the path of the folding mechanism, and also provided with means to engage the crease of the tab at the time of folding thereby to insure accurate bending of the tab on the crease line.

As illustrated in the drawings the rotating member is an assemblage comprising a shaft 3 having keyed upon it for longitudinal adjustment a sleeve 4 upon which the hubs of radial arms carrying respectively side lifting and tab folding means are mounted in such manner as to be circumferentially adjusted. A spacer sleeve 5, which surrounds the sleeve 4, is journaled in the hub 6 of a cylindrical cam plate 7 which is



mounted in a boss 8 of the supporting frame of the blank forwarding machine or a bracket mounted thereon.

The spacer sleeve abuts at its inner end against the hub of the adjacent arm of the side lifting mechanism and at its outer end is engaged by a nut 3*a* on the shaft 3. When the nut is set up it clamps the spacer sleeve against the hub of the lifter arm so that the assembled shaft 3, sleeve 4, spacer sleeve 5, and the lifter and folder carrying arms rotate as a unit.

The lifter arm 10 has a spit cylindrical hub fitting upon the sleeve 4 and adjustably clamped upon it by a suitable bolt 11. The arm is provided with an offset portion 12 upon the end of which is pivotally mounted a lifting lever 13 having an extension 14 between which and the boss 15 on the arm 10 is a compression spring 16 tending to swing the lifting lever inwardly. The lifting lever 13 is provided with an inwardly extending boss 17 upon which is rotatably mounted a cam follower 18 adapted to engage the cam 19 which is adjustably connected by bolt and slot connection 20 to the cylindrical periphery of the cam plate 7. The lifting lever 13 has adjustably secured upon its end a breaker plate 21 having a flat face 22 to engage and raise the side of the blank and an edge 22*a* positioned to engage the diagonal crease of the tab acting in cooperation with the folding mechanism to insure proper breaking of the tab on the diagonal crease line.

The sleeve 4 has also adjustably secured to it rearwardly of the lifter arm 10 a folder arm 23 having a split hub 24 adapted to fit the sleeve 4 and to be adjustably clamped upon it by a suitable bolt 25. The folder arm 23 is provided with a bifurcated end portion 26 upon which the front end of the base of a triangular folder support 27 is pivotally mounted.

The folder support has a flat upper end 28 upon which a folder 29 is adjustably secured by a bolt and slot connection 30. The folder may be provided with means for folding an outfold tab or an infold tab. As illustrated herein means are provided for folding an infold tab.

The other end of the base of the triangular folder support is provided with a cam follower 31 which engages a cam groove or track 32 in the face of the cam plate 7.

In the construction illustrated the folder for folding an infold tab has a straight tab engaging surface 33 terminating in a hooked end portion 34 adapted during the arcuate forward movement of the folder to engage over the edge of the diagonally creased tab and upon forward and downward movement to bend the tab downwardly and inwardly toward the under face of an upturned side of the blank. The folder 29 also has a curved under surface 35 adapted to engage the tab along its rear edge and has also at the lower end of the curved portion a diagonally extending ledge 36 adapted to engage the rear edge of the tab and force the tab and side wall upwardly more effectively to bend the tab upon its diagonal crease line during the folding operation.

The cam plate 7 is adjustably secured to the frame or bracket by a suitable bolt and slot connection 37 to permit the folding operation to be adjusted in accordance with the movement of the traveling blank. The cam groove 32 of the cam plate 7 is mainly concentric but has an outwardly curved portion 38 adapted during the rotation of the folder arm 23 to cause the cam follower 31 upon the folder head support to rock the folder support forwardly about its pivot on

the end of the arm 23 and thereby advance the folder during the folding operation at a speed greater than its normal speed, thereby rapidly folding the tab upon its diagonal crease line. The outwardly curved portion 38 of the cam groove merges into an inwardly extending sharply curved portion 39 which arrests the forward movement of the folder plate sufficiently to permit the traveling blank to move the tab from beneath the folder on an outfold box and over the folder on an infold box. The inner end of the sharply curved portion 39 of the cam groove merges into an inwardly curved portion which causes the cam follower 31 to depress the folder below the paper line as the traveling blank continues to advance so that the folder will not interfere with the next traveling blank.

At or just prior to the increasing movement of the folder the lifter plate is raised at an increasing speed to engage the under face of the blank along the crease line by a steeply inclined surface 41 of the peripheral cam 19 so that the cooperation between the movements of the folder and the lifter serves to insure accurate bending of the tab upon the diagonal crease line.

By reason of the adjustability of the cam plate 7 about the axis of the shaft 3, and because of the adjustability of the cam 19, the action of the lifter mechanism and folder mechanism may be coordinated properly to fold the trailing tabs of successive blanks presented thereto.

If desired additional lifter arms and additional folder arms with the respective lifting and folding mechanism thereon may be mounted upon the sleeve diametrically opposite to those herein illustrated to increase the speed of operation of the machine when operating upon blanks of suitable length for which such mechanism is adapted.

While the mechanism is herein described as particularly applicable to the folding of infolded tabs the machine may also be adapted for the folding of outfolded tabs by the substitution for the folder herein described of a folder such as that shown in my prior patent in which case the side lifting mechanism need not have the breaker plate of the character herein described.

In the operation of the machine blanks having sides provided with diagonal crease lines for the rear or trailing tabs are carried along the paper line upon suitable mechanism between the bars 1 and 2 with the sides projecting therebeyond. The mechanism herein described is rotated at a proper speed correlated to the rate of travel of the blanks and during the rotation of the mechanism herein described the sides of the blank are lifted by the lifter mechanism during its rapid lifting movement to a position above the paper line in which the hooked end of the folder will pass over the upper edge of the tab.

By reason of the increased speed of the movement of the folder mechanism during the folding operation the tab will be quickly folded over the breaker edge of the side lifter. As the tab is being thus folded the lower edge of the tab will be engaged by the ledge 36 of the folder which will raise the tab and side and so position the diagonal crease of the tab as to be most effectively acted upon by the diagonal breaker member of the lifter and the forward movement of the folder to fold the tab accurately upon the diagonal crease line. The forward movement of the folder will then be arrested as the cam follower 31 moves down the inwardly inclined path of the cam groove so that the tab of the blank will travel from beneath the folder on an outfold box. With an infold box the folder will be depressed to the paper line and the tab will pass over the folder between bars 42 and 43.

In the meantime, and simultaneously during the arrested movement of the folder, the lifter will be depressed below the paper line by the action of the spring 16 forcing the cam follower into contact with the cylindrical peripheral surface of the cam in which depressed position it will remain until the cam roller 18 again engages the abrupt surface 41 of the cam 19. After the folder has folded the tab in its raised position and as the folder head moves downwardly toward level position at the folder line the tension of the side wall due to the resilience of the material returns the side wall with the tab folded thereon toward horizontal position. As the blank is carried forward the side and the infolded tab passes between guide bars 42 and 43 which serve to press the sides into horizonal position and the infolded tabs closely against the faces of the sides so that the blank may be carried to mechanism for folding the sides inwardly preparatory to the glue spotting mechanism and the mechanisms for folding the blank to produce the assembled collapsed box above described.

It will be understood that the particular embodiments of the invention shown and described herein are of an illustrative character and not restrictive of the meaning and scope of the following claims.

Having thus described the invention, what is claimed as new, and desired to be secured by Letters Patent, is:

1. A machine for folding a tab upon a diagonally creased line of a side of a blank continuously travelling along a paper line comprising means for raising said side above the paper line, a rotatable member having an arm movable through part of its rotation in parallelism with and in the direction of movement of the blank, a head support hinged to said arm having a folder head mounted on said support movable above and below said paper line during such rotation and having means operable while above the paper line to engage, position and fold said tab upon the diagonally creased line, and means for increasing the rate of movement of said head at the time of folding beyond its normal peripheral speed.

2. A machine for folding a tab upon a diagonally creased line of a side of a blank continuously traveling along a paper line comprising means for raising said side above the paper line, a rotatable member having an arm movable through part of its rotation in parallelism with and in the direction of movement of the blank, a head support hinged to said arm having a folder head mounted on said support movable above and below said paper line during such rotation and having means operable while above the paper line to engage, position and fold said tab upon the diagonally creased line, means for increasing the rate of movement of said head at the time of folding beyond its normal peripheral speed, and means for arresting the forward movement of the head to allow the tab to pass from under said head as it approaches the paper line.

3. A machine for folding a tab upon a diagonally creased line of a side of a blank continuously traveling along a paper line comprising means for raising said side above the paper line, a rotatable member having an arm movable through part of its rotation in parallelism with

and in the direction of movement of the blank, a head support hinged to said arm having a folder head mounted on said support movable above and below said paper line during such rotation and having means operable while above the paper line to engage, position and fold said tab upon the diagonally creased line, means for increasing the rate of movement of said head at the time of folding beyond its normal peripheral speed, and means for arresting the forward movement of the head to allow the tab to pass from under said head as it approaches the paper line, and thereafter depressing said folder head below said paper line.

4. A machine for folding a tab upon a diagonally creased line of a side of a blank continuously traveling along a paper line comprising a rotatable member having an arm movable through part of its rotation in parallelism with and in the direction of movement of the blank, a head support hinged to said arm having a folder head mounted on said support movable above and below said paper line during such rotation, said head having a tab-engaging surface inclined angularly to the plane of rotation of said head provided with a hooked end portion to engage over the edge of the tab and bend the tab under the side of the blank to form an inside fold.

5. A machine for folding a tab upon a diagonally creased line of a side of a blank continuously traveling along a paper line comprising a rotatable member having an arm movable through part of its rotation in parallelism with and in the direction of movement of the blank, a head support hinged to said arm having a folder head mounted on said support movable above and below said paper line during such rotation, said head having a tab-engaging surface inclined angularly to the plane of rotation of said head provided with a hooked end portion to engage over the edge of the tab and bend the tab under the side of the blank to form an inside fold, a ledge on said folder spaced from its hooked end and a curved guiding surface on said folder for guiding the edge of the tab against said ledge as it is being folded.

6. A machine for folding a tab upon a diagonally creased line of a side of a blank continuously traveling along a paper line comprising a rotatable member having an arm movable through part of its rotation in parallelism with and in the direction of movement of the blank, a head support hinged to said arm having a folder head mounted on said support movable above and below said paper line during such rotation and having means to engage and fold said tab upon the diagonally creased line, another arm mounted on said rotating member having a side wall lifter hinged to said arm, and means for actuating said side lifter to break the tab along said crease line while the tab is engaged by said lifter.

7. A machine for folding a tab upon a diagonally creased line of a side of a blank continuously traveling along a paper line comprising a rotatable member having a folding member pivotally mounted thereon for folding the tab toward the under face of the side, a lifting member pivotally mounted on said rotating member having means to engage the side at or near the diagonal crease of said tab, means for actuating said folding member, and means for actuating said lifting member in timed relation to said folding member to engage the crease line as the folding member bends the tab.



8. A machine for folding a tab upon a diagonally creased line of a side of a blank continuously traveling along a paper line comprising a rotatable member having a folding member pivotally mounted thereon for folding the tab toward the under face of the side, a lifting member pivotally mounted on said rotating member having means to engage the side at or near the diagonal crease of said tab, means for actuating said folding member, and means for actuating said lifting member in timed relation to said folding member to engage the crease line as the folding member bends the tab including means for increasing the speed of said lifting member at the desired period of operation of the folding means.

9. A machine for folding a tab upon a diagonally creased line of a side of a blank continuously traveling along a paper line comprising a rotating member having an arm, a lifter pivotally mounted thereon having means to engage the diagonal crease line, an arm on said rotary member following the arm of said lifter, a folder support hinged to said arm, a folder mounted on said support having means to engage the tab and bend it toward the under face of the side of the blank, and means for actuating said lifter and said folder in suitably timed relation to cause the conjoint action of said lifter and folder to bend the tab accurately upon said diagonal crease line.

10. A machine for folding a tab upon a diagonally creased line of a side of a blank continuously traveling along a paper line comprising a rotating member having an arm, a lifter pivotally mounted thereon having means to engage the diagonal crease line, an arm on said rotary member following the arm of said lifter, a folder support hinged to said arm, a folder mounted on said support having means to engage the tab and bend it toward the under face of the side of the blank, and means for actuating said lifter and said folder in suitably timed relation to cause the conjoint action of said lifter and folder to bend the tab accurately upon said diagonal crease line including means for increasing the forward movement of the folder at the time of folding beyond its peripheral speed, arresting said forward movement at the end of the folding movement, and then moving said folder below the paper line.

11. A machine for folding a tab upon a diagonally creased line of a side of a blank continuously traveling along a paper line comprising a rotating member having an arm, a lifter pivotally mounted thereon having means to engage the diagonal crease line, an arm on said rotary member following the arm of said lifter, a folder support hinged to said arm, a folder mounted on said support having means to engage the tab and bend it toward the under face of the side of the blank, and means for actuating said lifter and said folder in suitably timed relation to cause the conjoint action of said lifter and folder to bend the tab accurately upon said diagonal crease line including means for increasing the forward movement of the folder at the time of folding beyond its peripheral speed, arresting said forward movement at the end of the folding movement, and then moving said folder below the fold line, and including means for increasing the lifting speed of the lifter at the desired speed of operation thereof and then moving the lifter below the paper line.

12. A machine for folding a tab upon a diagonally creased line of a side of a blank con-

tinuously traveling along a paper line comprising a frame, a rotatable member journaled in said frame having a radial arm, a triangular folder support hinged on one end of its base to said side arm, a folder mounted on the other end of said support having an angularly inclined tab-engaging surface, a lifter for bending the side and its tab into the path of said folder, means for actuating said folder comprising a cam follower mounted on said triangular support at the other end of said base engaging a cam fixedly secured to said frame and having a path adapted to increase the rate of movement of the folder at the time of folding beyond its normal peripheral speed, to arrest the normal movement of the folder at a predetermined time, and then to depress the folder beyond the paper line.

13. A machine for folding a tab upon a diagonally creased line of a side of a blank continuously traveling along a paper line comprising a frame, a rotatable member journaled in said frame having a radial arm, a triangular folder support hinged on one end of its base to said side arm, a folder mounted on the other end of said support having an angularly inclined tab-engaging surface, a lifter for bending the side and its tab into the path of said folder, means for actuating said folder comprising a cam follower mounted on said triangular support at the other end of said base engaging a cam fixedly secured to said frame and having a path adapted to increase the rate of movement of the fold at the time of folding beyond its normal peripheral speed, to arrest the normal movement of the folder at a predetermined time, and then to depress the folder beyond the paper line, and means for actuating said lifter including means to raise it at increasing speed at the desired period of operation of the folder.

14. A machine for folding a tab upon a diagonally creased line of a side of a blank continuously traveling along a paper line comprising a frame, a rotatable member journaled in said frame having a radial arm, a triangular folder support hinged on one end of its base to said side arm, a folder mounted on the other end of said support having an angularly inclined tab-engaging surface, a lifter arm on said rotating member in advance of said folder supporting arm, a spring actuated lifter for the side of the blank pivotally mounted on said arm having means for engaging the diagonal crease line of said blank, means for respectively actuating said folder and lifter cooperatively to bend the tab accurately on said crease line comprising a cam plate fixedly secured to said frame having a cam groove, engaged by a cam follower on the base of said triangular folder support, forming a path to increase the rate of movement of the folder at the time of folding beyond its normal peripheral speed, to arrest the movement of the folder at a predetermined time and then to depress the folder beyond the folder line, said cam plate also having a cam engaging a cam follower on said lifter operable to raise the lifter with increasing speed at the desired period of operation of the folder, and then to permit depression of the lifter by its spring below the paper line.

15. A machine for folding a tab upon a diagonally creased line of a side of a blank continuously traveling along a paper line comprising a frame, a rotatable member journaled in said frame having a radial arm, a triangular folder support hinged on one end of its base to said side arm, a folder mounted on the other end of said support having an angularly inclined tab-engaging surface, a lifter arm on said rotating member in advance of said folder supporting arm, a spring actuated lifter for the side of the blank pivotally mounted on said arm having means for engaging the diagonal crease line of said blank, means for respectively actuating said folder and lifter cooperatively to bend the tab accurately on said crease line comprising a cam plate fixedly secured to said frame having a cam groove, engaged by a cam follower on the base of said triangular folder support, forming a path to increase the rate of movement of the folder at the time of folding beyond its normal peripheral speed, to arrest the movement of the folder at a predetermined time and then to depress the folder beyond the folder line, said cam plate also having a cam engaging a cam follower on said lifter operable to raise the lifter with increasing speed at the desired period of operation of the folder, and then to permit depression of the lifter below the paper line, and means for rotarily adjusting said cam plate about the axis of said rotating member to position the folding and lifting mechanism properly relatively to the traveling blanks.

16. A machine for folding on a diagonal creased line a corner tab of the side panel of a blank continuously traveling along a horizontal paper line which comprises tab-folding and side panel-lifting means, means operating said folding and lifting means to cause the lifting means to bend upward the portion of the said side panel adjacent the tab and to cause the folding means to bend the tab downward on said diagonal creased line against the said side panel and thereafter in conjunction with the advancing movement of the blank to release the blank and allow its resiliency to return the side panel, with the tab folded therebeneath, to substantially horizontal position.

17. A machine for folding on a diagonal creased line a trailing corner tab of the side of a blank continuously traveling along a horizontal paper line which comprises a member rotatable about a stationary center having a portion thereof moving, upon forward rotation of said member, substantially in the same direction of travel as that of the blank and provided with means acting upon said forward rotation to bend upward the portion of the said blank side adjacent the tab, means rotatable about the said center acting as the side portion is thus bent upward to bend downward the tab on said diagonal creased line, and means acting to rotate said member and said downward-bending means in the direction of blank travel and to cause the side portion upward bending means and the tab-downward bending means to travel slower and then faster during part of their operation than the travel of the blank.

FRED H. CHAPMAN.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

| Number | Name | Date |
|---|---|---|
| 2,112,121 | Sidebotham | Mar. 22, 1938 |
| 2,198,094 | Swafford | Apr. 23, 1940 |
| 2,261,018 | Chapman | Oct. 28, 1941 |
| 2,329,353 | La Bombard | Sept. 14, 1943 |