

H. G. DEWEY.

METHOD OF AND APPARATUS FOR WRAPPING CANS AND THE LIKE.

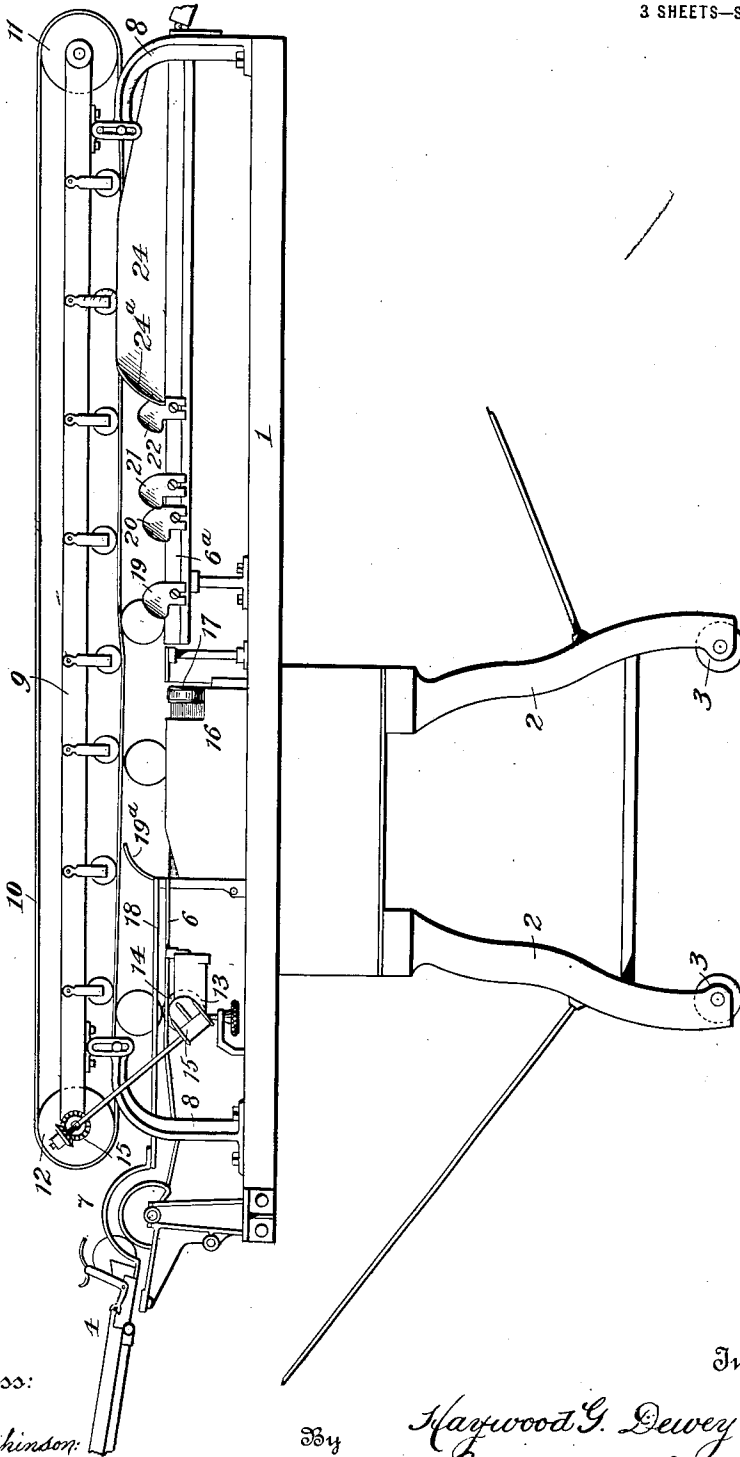
APPLICATION FILED APR. 4, 1917.

1,337,693.

Patented Apr. 20, 1920.

3 SHEETS—SHEET 1.

Fig. 1.



Witness:

Jas. C. Hutchinson.

Inventor:

By

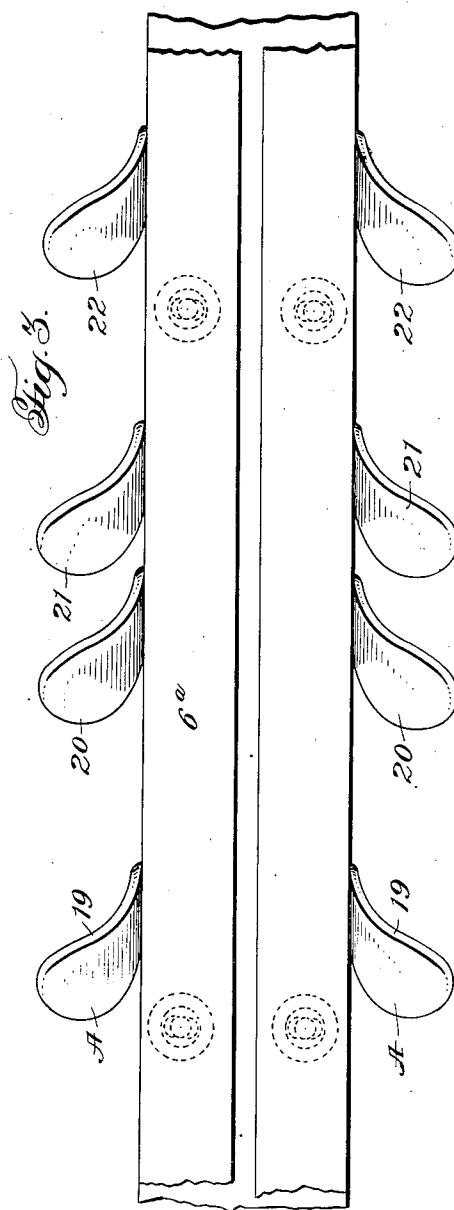
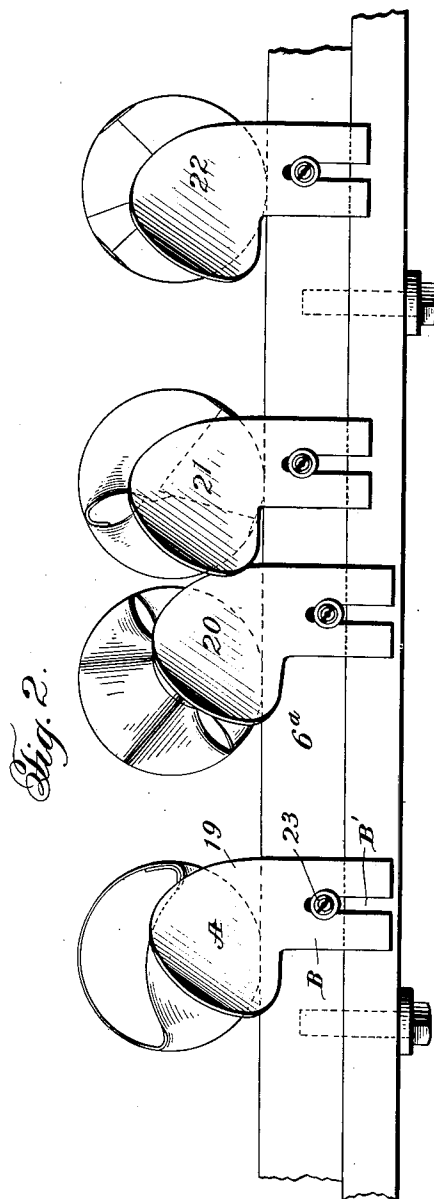
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3 SHEETS—SHEET 2.



Witness:

John Hutchinson

By

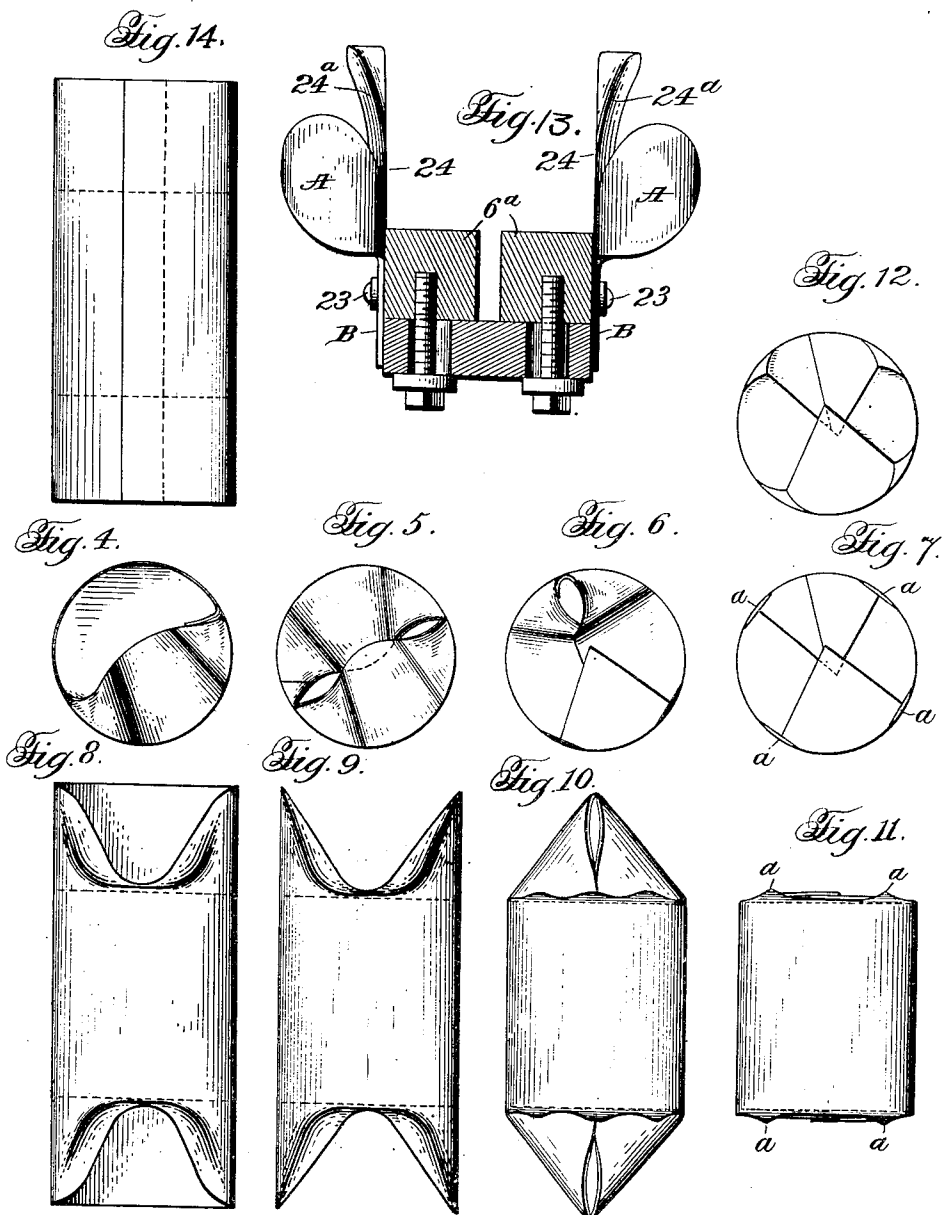
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3 SHEETS—SHEET 3.



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Jas. E. Hutchinson:

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UNITED STATES PATENT OFFICE.

HAYWOOD G. DEWEY, OF WESTMINSTER, MARYLAND, ASSIGNOR TO FRED H. KNAPP COMPANY, OF WESTMINSTER, MARYLAND, A CORPORATION OF MARYLAND.

METHOD OF AND APPARATUS FOR WRAPPING CANS AND THE LIKE.

1,337,693.

Specification of Letters Patent.

Patented Apr. 20, 1920.

Application filed April 4, 1917. Serial No. 159,766.

To all whom it may concern:

Be it known that I, HAYWOOD G. DEWEY, a citizen of the United States, residing at Westminster, in the county of Carroll and State of Maryland, have invented certain new and useful Improvements in Methods of and Apparatus for Wrapping Cans and the like, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to an improved method of, and apparatus for, applying and affixing to the periphery of cans, cartons, or similar packages, a label or wrapper with edges of the label projecting beyond the edges of the package, and for subsequently folding said projecting edges against the ends of the package to constitute an inclosure or envelop therefor.

The invention involved herein has to do more particularly with the folding of the edges of the label or wrapper over upon and in contact with the ends of the package and one of the objects of the invention is to provide a simple, compact and comparatively inexpensive method and apparatus for this purpose.

Various types of machines have heretofore been suggested for the purpose of applying and affixing wrappers to cylindrical packages, and folding the projecting edges of the same, but these machines for the most part have been rather complicated and quite expensive, and because of this drawback have not been universally adopted, those dealing in the art oftentimes resorting to a manual application and folding of the wrappers. This is particularly true when the wrapper is of a character to constitute merely a temporary inclosure for the package, to meet the requirements of certain shipping laws, in which event the appearance of the wrapped package was oftentimes not considered of material moment, and rather than go to the expense of utilizing a complicated and expensive machine for this purpose, manual labor was resorted to.

It is contemplated by the present invention to provide novel means for neatly and

firmly applying and folding the wrapper in position on the can, the folding means involving but a few parts, and said parts being stationary and acting automatically in the movement of the cans with applied labels along the runway to fold the projecting edges of the label in an interlocking compact relation against the ends of the can.

More particularly the invention includes means for applying to the periphery of a cylindrical package a label or wrapper with edges of the same projecting beyond the ends of the package, and means arranged at opposite sides of the runway to the rear of the label applying mechanism to fold the projecting edges of the label or wrapper in a novel and improved manner, combining neatness with a more secure interlock between the folds of said projecting edges.

In the embodiment of the invention illustrated, a series of folding arms or blades are provided in the path of the projecting edges of the wrappers applied to the cans, and in order that these arms or blades may be accurately positioned, novel and improved retaining means therefor is provided making possible detachment and ready adjustment at will.

Another feature of the invention resides in means whereby the two series of folding arms or blades one at each side of the runway for the package may be readily adjusted laterally relative to one another, thereby accommodating the folding mechanism to cans and wrappers of different sizes.

Still further the invention includes means for feeding the cans with wrappers applied thereto and with the edges of the wrapper projecting beyond the ends of the can, whereby the cans are so positioned that one portion of the projecting edge of the wrapper will be folded against the end of the can, whereupon the can is given a half turn when the opposite projecting edge of the label will be folded against the end of the can, whereupon the can is given a quarter movement with the result that a portion of the projecting edge of the wrapper at right angles to the aforesaid folded portions thereof is

folded against the end of the cans, and finally whereby the can is given a half revolution to fold the remaining portion of the projecting edge of the wrapper; which remaining portion is opposite to the last mentioned fold.

The invention still further embraces a novel method of applying wrappers to cans with a projecting edge of the labels folded against the end of the cans, said method including first folding one projecting edge portion of the wrapper, secondly folding an opposite projecting edge portion of the wrapper, thirdly folding a projecting edge portion of the wrapper at right angles to the first two mentioned folds, and finally folding a projecting edge portion of the wrapper opposite to the third mentioned fold.

In the description and claims wherein the package to be labeled and wrapped will for convenience usually be referred to as a can, it is to be borne in mind that this term is a general one including within its scope any carton or package of the cylindrical type.

For a clear understanding of the invention, reference is directed to the accompanying drawings which form a part hereof and wherein is disclosed for the purpose of illustration a convenient and satisfactory embodiment of the invention, though in this connection it is to be borne in mind that certain novel details in the construction and arrangement of parts may be varied at will and still keep within the contemplation of the invention.

In the drawings Figure 1 is a front elevation of a labeling machine having the improved folding mechanism applied thereto;

Fig. 2 is a side elevation broken away illustrating the folding mechanism, and the cans with the wrappers during the process of folding, said parts being enlarged for the purpose of clearness;

Fig. 3 is an enlarged top plan of the folding mechanism enlarged, portions of the supporting mechanism being broken away;

Figs. 4, 5, 6 and 7 illustrate the various steps of folding a wrapper applied can;

Figs. 8, 9, 10 and 11 are end views of the wrapper applied cans showing the several steps in the folding operation;

Fig. 12 illustrates the completed fold;

Fig. 13 is a sectional view of the folding mechanism; and

Fig. 14 illustrates a wrapper applied to a can with the edges of the wrapper projecting beyond the ends of the can and previous to the folding operation.

With more particular reference to the drawings, wherein like reference numerals refer to corresponding parts throughout the several views, a suitable framework 1 is provided, the same being mounted upon legs or standards 2 conveniently having roller bear-

ings 3 whereby the apparatus as a whole may be moved from place to place. A suitable can inlet chute 4 is provided at one end of the machine, and a discharge chute may be provided at the rear end of the machine. Extending longitudinally of the machine and supported in any desired manner from the framework are laterally spaced runway sections 6. Interposed between the front end of the runway section 6 and the inlet chute is suitable spacing and can transfer mechanism generally indicated by the reference character 7. Superimposed above the framework 1 and supported therefrom as by overhanging brackets 8 is an auxiliary frame 9 adapted to support can feeding mechanism which conveniently takes the form of a belt or belts 10 mounted upon suitable pulleys 11 and 12, one of said pulleys, conveniently 11, being adapted to be positively driven through the medium of a hand crank or power driving mechanism, as is usual in machines of this character. Arranged below the runway is a suitable paste receptacle 13 having mounted therein a paste roller or rollers 14, the upper surface of which is in substantial alinement with the runway track sections 6, whereby as a can moves over and in contact with the same through the medium of the belts 10 a narrow strip of paste will be applied to the can substantially from end to end thereof. The paste roller 14 is preferably positively driven through the medium of gear connections 15 with the shaft of the feed belt roller 12. Arranged rearwardly of the pick up pasting mechanism just described is a labeling mechanism and lap end pasting mechanism, the labeling mechanism being generally indicated by the reference numeral 16 and the lap end pasting mechanism by the numeral 17, and since these parts may be of any of the approved types, it will be unnecessary to refer to the same in detail herein. It is understood however that the labeling mechanism includes a vertically movable platform upon which the supply of labels is placed with the uppermost label in substantial alinement with the runway sections and properly spaced longitudinally from the pick up paste roll whereby the pasted area of the can will engage the foremost edge of the upper surface of the topmost label to pick up the same and, in the rolling movement of the can, cause the label to wrap about the periphery of the can. It is also understood that the support or platform for the labels is of sufficient width to support labels or wrappers of a width somewhat greater than the length of the cans, whereby opposite sides or edges of the label will project a considerable distance beyond the ends of the can when applied to the latter. In order to accurately guide the cans and prop-

erly position the same centrally upon the labels as the cans engage the labels, oppositely disposed guides 18 are provided, the same adapted to engage opposite ends of the can, and one of such guides may be yieldable to accommodate slight variations in lengths of the cans. The guides are of a length to overlie the forward or pick up end of the labels, but at this point the guides are curved upwardly and forwardly as illustrated at 19^a so as not to engage that portion of the wrapper which has been picked up by the can, it being noted that the movement of the can will bring the picked up portion of the wrapper beyond said curved terminal of the guides.

The folding mechanism for the projecting edges of the label or wrapper is arranged rearwardly of the lap end pasting mechanism 17, and includes a series of folding arms or blades arranged at each side of runway sections 6^a, and since the folding arms or blades of each series are substantially duplicates, it will be only necessary to refer to one series of such arms or blades and the action of the same upon the projecting edges of the label at one end of the can. It has been seen that the can will be accurately centered with regard to the label at the time of picking up the label, and it is desirable that the folding mechanism act upon the projecting edges of the applied label before the can has had an opportunity to tilt or cant, which might result in an improper fold. To this end the folding mechanism is arranged quite close or adjacent to the lap end pasting mechanism, the foremost arm or blade 19 being spaced rearwardly from the lap end pasting mechanism only a distance sufficient to permit the can to make a complete revolution whereby to present the projecting edges of the overlapping ends of the label into position to be acted upon by the foremost arms or blades 19. The second folding arm or blade 20 is spaced rearwardly from the arms 19 a distance to permit of substantially a half revolution of the can in its movement from said arms 19 to the arms 20. The third folding arms 21 are spaced rearwardly from the second folding arms 20 a distance to permit substantially a quarter revolution of the cans, whereas the fourth folding arms 22 are spaced rearwardly from the arms 21 a distance to permit a substantially half revolution of the cans in the movement of the cans between these points. The arms 19, 20, 21 and 22 are of similar construction and comprise relatively wide outwardly flaring heads A and an engaging stem portion B, the latter being slotted at B' whereby to engage over the stems of bolts 23 projecting outwardly from the runway bars or tracks 6^a. This means of connection for the fold-

ing arms permits of accurate adjustment of these parts, that is to say the folding arms may be raised or lowered at will or move about the pivotal support provided by the stems of the bolts 23. The bolts when tightened will of course maintain the folding arms in fixed position. As will appear more particularly from Fig. 2 of the drawing, it will be observed that the enlarged flared head of the first folding arms 19 projects below the upper surface of the runway bars 6^a, to avoid any possibility of the folding arms engaging the inner surface of the projecting edges of the wrapper which might tend to tear or otherwise injure the same. This is also true of the second folding arms 20, but preferably the third and fourth folding arms 21 and 22 are somewhat elevated with respect to the preceding folding arms whereby to engage the remaining portions of the projecting edges of the wrapper to be folded at the most effective points which results in a more compact and neater fold than might otherwise be the case.

In the folding operation the movement of the cans is so timed that as the same with the projecting labels are brought into operative relation with the first folding arms 19 the lap portions of the projecting edges of the label will be engaged by said folding arms, thereby to fold this portion of the projecting edges of the label into contact with the can head, as illustrated more particularly in Figs. 2, 4 and 8. The continued movement of the cans along the runway bars 6^a for a distance to permit the cans to make a complete revolution will cause that portion of the projecting edge of the labels opposite to the first folded portion to be folded, as illustrated more particularly in Figs. 2, 5 and 9. Thereupon as the can is given a quarter revolution, a portion of the projecting edges of the label at right angles to the previously folded portions will be folded by the third folding arms 21, as illustrated more particularly in Figs. 2, 6 and 10, when the movement of the cans will be continued for another revolution, whereby that portion of the projecting edge of the labels opposite to the third folded portion thereof will be folded by the fourth folding arms 22, as illustrated more particularly in Figs. 2, 7 and 11.

It has been ascertained that the four folds given to the projecting edges of the label in the manner just described are sufficient to effectively fold the projecting edges of the label and maintain these folds in compact relation with the ends of the cans, and because of the interlocking engagement between the folds afforded by the particular order or sequence of folding, the folds are not likely to be opened, as is more apt to be the case where a number of folding arms

are provided to successively act upon successive portions of the projecting edges of the wrapper.

While the folding mechanism provided embraces but a few number of parts, and while the folds are fewer in number than heretofore contemplated, it has been ascertained that because of the relationship of the folds, the number thereof is sufficient for all ordinary purposes, and material expense is thereby saved. Also it is possible to materially shorten the length of the machine than would otherwise be the case, *i. e.* assuming that a large number of closely associated folding fingers or blades are employed as heretofore.

A wrapper applied in the manner above described, upon being folded by the four sets of folding members, will present relatively slight portions intermediate the folds at the periphery of the can which are not quite in contact with the end of the can, and in order to bring these projecting portions into folded flat condition, it is contemplated to provide opposed guide arms 24 having outwardly flaring forward ends 24^a, said guide arms being adapted to receive therebetween the folded wrapper. As the folds and any projecting portions of the wrapper overlying the ends of the can are brought into contact with these side guides, they will be collapsed into compact condition against the ends of the can, and this last mentioned operation also serves to more effectively maintain the four folds of the projecting edges of the label previously described in interlocked flat condition. As the wrapped cans pass beyond the guides 24, the same are delivered to the discharge runway 5 and are ready for shipment.

The improved method of applying the labels is believed to be obvious from the above description when considered in connection with the accompanying drawings, particularly Figs. 2 and 4 to 12 inclusive showing the successive steps in the folding operation. In Figs. 4 and 8 it will be seen that one portion of the projecting edge of the wrapper has been folded by the first or forward folding arms 19; in Figs. 5 and 9 an opposite projecting edge portion of the label has been folded by the second folding arms 20; in Figs. 6 and 10 a third projecting portion of the label at substantially right angles to the aforementioned folded portions has been folded by the folding arms 21; in Figs. 7 and 11 a fourth portion of the projecting edge of the label has been folded by the arms 22, whereas in Fig. 12 the folded portions of the label have been acted upon by the guides 24 whereby to collapse any projecting portions such as indicated at *a* in Figs. 7 and 11.

It will be appreciated that the construc-

tion of the folding arms is such that they are interchangeable at will, made possible by the provision for relative adjustment of the supporting means therefor, and this is a factor of importance in the manufacture and incident saving of expense in the making of blades of different sizes, configurations, etc.

What I claim is:

1. In a labeling machine, a runway for cans having applied thereto a label with an edge of the label projecting beyond one end of the cans, and folding mechanism for said projecting edge of the label, comprising end folding arms projecting upwardly above the runway, and intermediate folding arms projecting upwardly from the runway, the intermediate folding arms being arranged adjacent to one another, and the end arms being spaced a considerable distance from said intermediate arms, substantially as and for the purpose described.

2. In a labeling machine, a runway for cans having applied thereto a label with an edge of the label projecting beyond one end of the cans, and folding mechanism for said projecting edge of the label, comprising end folding arms projecting upwardly above the runway, and intermediate folding arms projecting upwardly from the runway, the intermediate folding arms being arranged adjacent to one another, and the end arms being spaced a considerable distance from said intermediate arms, all of said arms being supported for oscillating adjustment whereby to relatively position the arms, and means for maintaining the arms when adjusted in fixed position.

3. In a labeling machine, a runway for cans having applied thereto labels with edges of the labels projecting beyond the ends of the cans, and a series of folding arms at each side of the runway to engage the projecting edges of the label and fold the same against the ends of the can, said folding members of each series being arranged at variable distances from each other, whereby to engage portions of said projecting edges of the label and fold the same against the ends of the can in a non-successive order.

4. In a labeling machine, a runway for cans having applied thereto labels with edges of the labels projecting beyond the ends of the cans, and a series of folding arms at each side of the runway to engage the projecting edges of the label and fold the same against the ends of the can, said folding members being constructed and arranged whereby to act upon non-successive portions of the projecting edges of the label.

5. In a labeling machine, the combination of a runway for cans or the like, means for feeding cans along the runway, means for

applying and affixing labels to the cans with edges of the label projecting beyond the ends of the can, and folding mechanism arranged at opposite sides of the runway to successively fold non-successive portions of the projecting edges of the label.

6. In a labeling machine, the combination of a runway for cans or the like, labeling and pasting mechanism adapted to apply to the periphery of a can a label with edges of the same projecting beyond the ends of the can, and folding mechanism arranged in the path of the cans, said folding mechanism acting first to fold one portion of the projecting edges, then a portion thereof removed from the first folded portion, and thereafter to fold the intermediate projecting portions of the label.

7. In a labeling machine, the combination of means for applying a label to a can with one edge of the label projecting beyond the end of the can, and mechanism acting to fold over said end of the can first one portion of said projecting edge of the label, second that portion of the projecting edge opposite the first folded portion, third a portion of the projecting edge of the label at substantially right angles to the last folded portion, and fourth that portion of the projecting edge of the label opposite the third folded portion thereof.

8. In a labeling machine, the combination of means for applying a label to a can with one edge of the label projecting beyond the end of the can, and mechanism acting to fold over said end of the can first one portion of said projecting edge of the label, second that portion of the projecting edge opposite the first folded portion, third a portion of the projecting edge of the label at substantially right angles to the last folded portion, and fourth that portion of the projecting edge of the label opposite the third folded portion thereof, and means to engage and fold any further projecting portions of the label at the periphery of said end of the cans.

9. In a labeling machine, the combination of a runway, labeling and paste applying mechanism to apply labels to cans with edges of the labels projecting beyond the ends of the cans, and mechanism acting to fold said projecting edges of the label over upon the ends of the can, said mechanism comprising a series of longitudinally spaced members at opposite sides of the runway, said members acting in succession to first fold one portion of said projecting edges of the label, secondly to fold a portion of the projecting edge opposite the first folded portion, thirdly to fold a portion of the projecting edge of the label at substantially right angles to the last folded portion, and fourthly to fold the projecting

edge of the label opposite the third folded portion thereof.

10. In a labeling machine, the combination of a runway, labeling and paste applying mechanism to apply labels to cans with edges of the labels projecting beyond the ends of the cans, and mechanism acting to fold said projecting edges of the label over upon the ends of the can, said mechanism comprising a series of longitudinally spaced members at opposite sides of the runway, said members acting in succession to first fold one portion of said projecting edges of the label, secondly to fold a portion of the projecting edge opposite the first folded portion, thirdly to fold a portion of the projecting edge of the label at substantially right angles to the last folded portion, and fourthly to fold the projecting edge of the label opposite the third folded portion thereof, and means arranged at opposite sides of the runway to engage the folded portions of the labels to smooth the same in the continued movement of the cans along the runway.

11. In a labeling machine, the combination of a runway, labeling and pasting mechanism adapted to apply and affix labels to cans with edges of the labels projecting beyond the ends of the cans, means at opposite sides of the runway to fold said projecting edges into contact with the ends of the can, said means comprising a first folding blade, a second folding blade spaced rearwardly from the first blade a distance substantially equal to one-half the circumference of the can, a third folding blade spaced rearwardly from the second blade a distance substantially equal to one-fourth the circumference of the can, and a fourth folding blade spaced from the third blade a distance substantially equal to one-half the circumference of the can.

12. In a labeling machine, the combination of a runway, means for applying and affixing to the periphery of cans a label with an edge of the label projecting beyond one end of the can, and a plurality of curved folding blades at that side of the runway adjacent the projecting edge of the label, said blades being arranged to engage said projecting edge of the label to fold the same, and the blades being arranged at different distances from each other, whereby to engage the projecting edge of the label in a non-continuous order.

13. In a labeling machine, the combination of a runway for cans or the like, means for applying to the periphery of cans labels with edges of the label projecting beyond the ends of the can, and folding mechanism for the opposite projecting edges of the label, said mechanism comprising four folding blades to engage the projecting edges of

the label, the intermediate blades being arranged in relatively close association, whereas the outer blades are arranged a greater distance from the intermediate blades, whereby successive blades do not engage successive portions of the projecting edges of the label.

14. In a labeling machine, the combination of a runway for cans, means for applying to the periphery of cans a label with edges projecting beyond the ends of the can, lap end pasting means for the label, a series of longitudinally spaced folding blades arranged at opposite sides of the runway,

means for feeding the cans along the runway, the foremost folding blades being arranged and so positioned with respect to the lap end pasting mechanism as to engage the lapped end portion of the projecting edges of the label and whereby the lapped end portion of the label is first held in contact with the can.

In testimony whereof I hereunto affix my signature in the presence of two witnesses.

HAYWOOD G. DEWEY.

Witnesses:

W. R. MYERS, Jr.,

FRED A. KNAPP.