June 24, 1930. M. ZURNDORF 1,766,239

GUM LABELING MACHINE

Filed Jan. 4, 1928 3 Sheets-Sheet 1

Fig. 2.

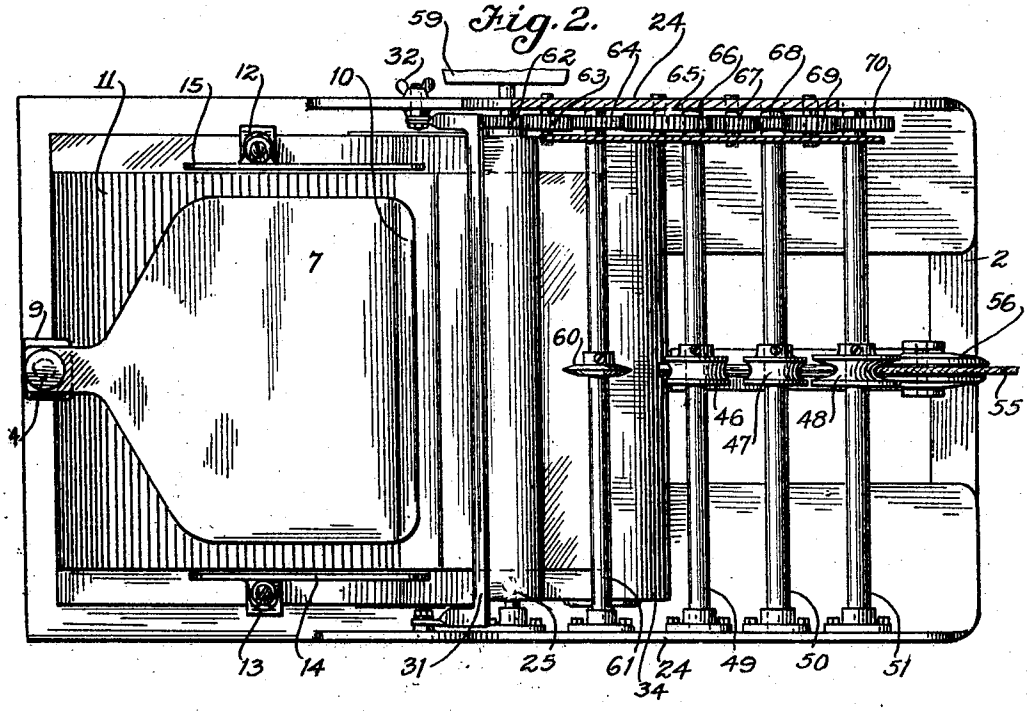
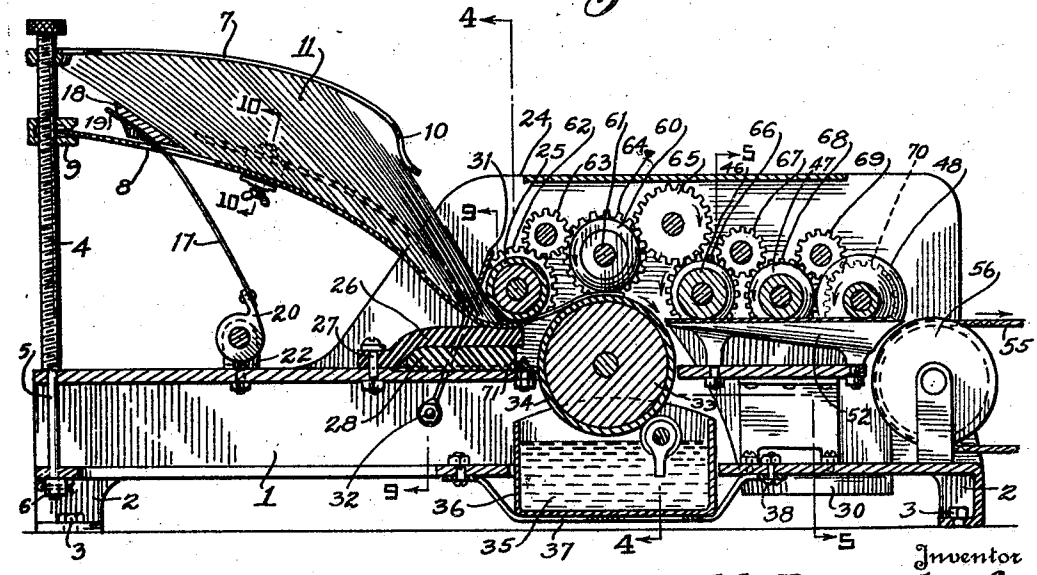


Fig. 1.



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GUM LABELING MACHINE

Filed Jan. 4, 1928 3 Sheets-Sheet 2

Fig. 3.

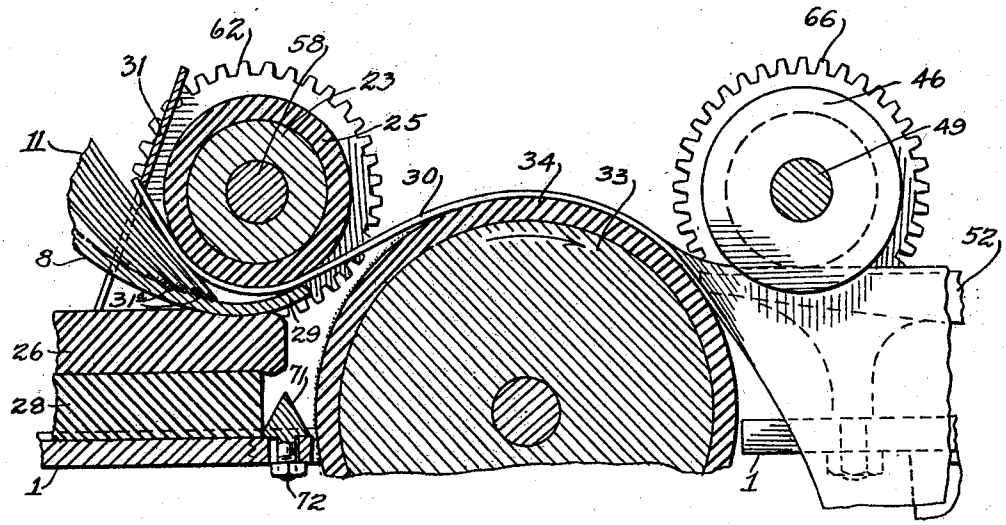


Fig. 8.

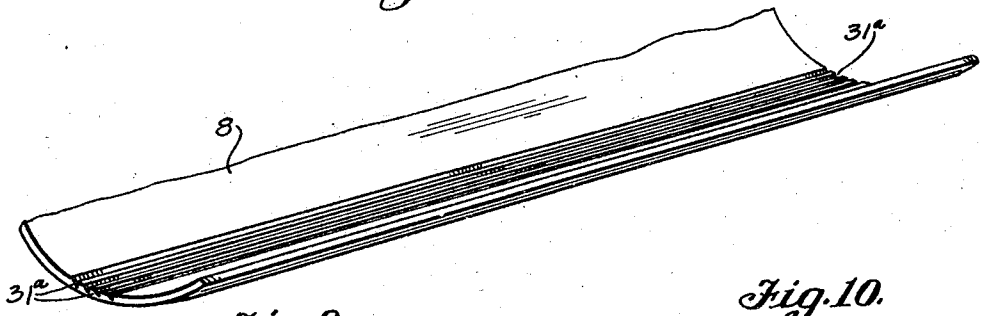


Fig. 9.

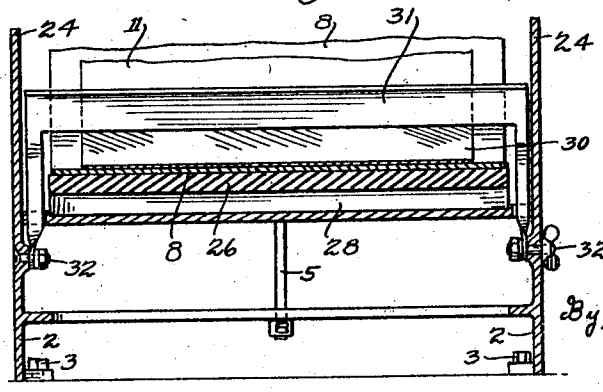
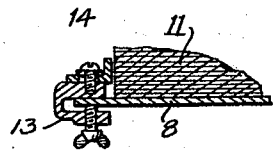


Fig. 10.



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GUM LABELING MACHINE

Filed Jan. 4, 1928 3 Sheets-Sheet 3

Fig. 4.

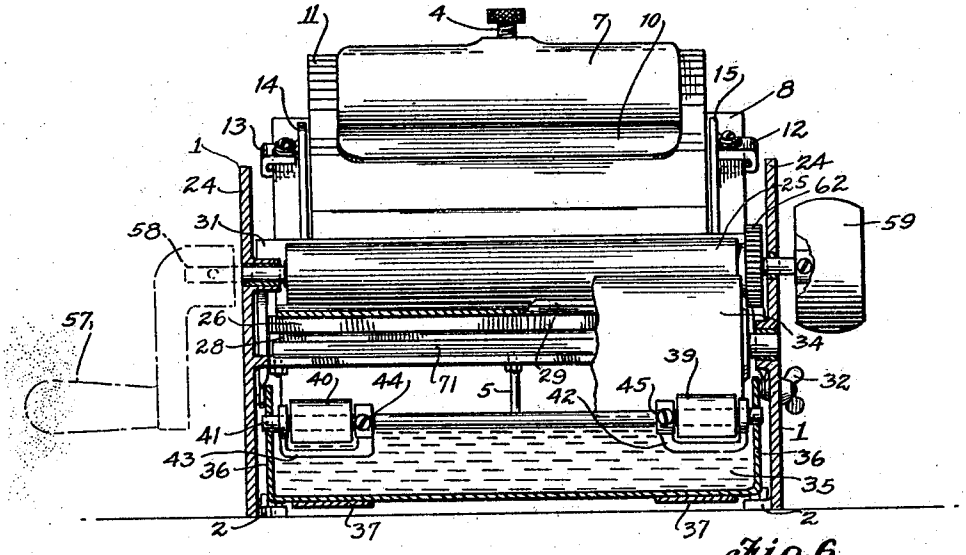
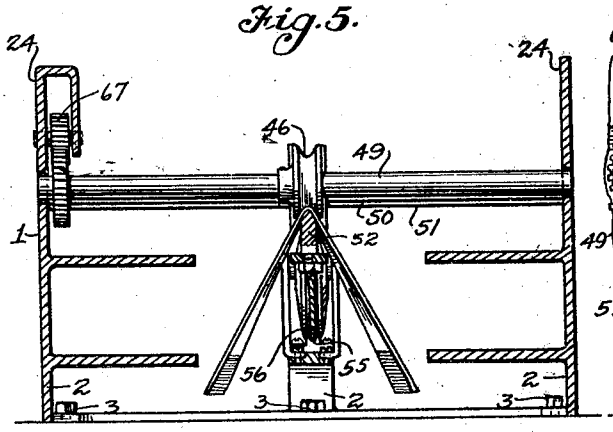


Fig. 6.

Fig. 5.



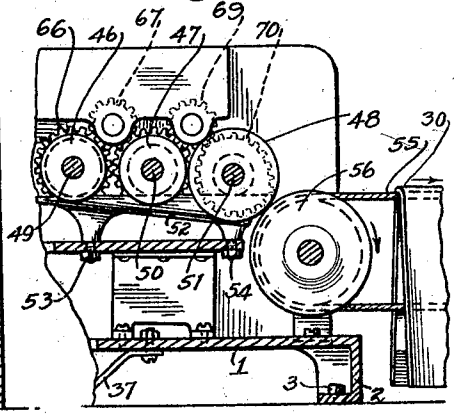
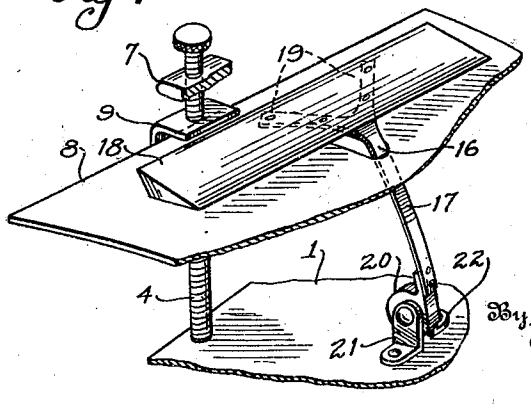


Fig. 7.



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Patented June 24, 1930

1,766,239

UNITED STATES PATENT OFFICE

MAXWELL ZURNDORF, OF BALTIMORE, MARYLAND

GUM-LABELING MACHINE

Application filed January 4, 1928. Serial No. 244,541.

This invention relates to improvements in gum labeling machines, particularly in a device for the automatic feeding of the label material, gumming and bending thereof.

An object of this invention is to provide a gum label device which will function to take a bundle or plurality of straight or odd shaped labels, peel the top label from the next one by a continuous rotary motion without the use of any reciprocating stop or ratchet elements, and to deliver the labels one by one, close together, yet not interfering with each other, to the party applying the labels to a fabric, box or any other suitable element.

Another object of this invention is to provide a gum labeling machine which will function to feed automatically sheets of papers or labels of different thicknesses and entirely eliminating all timing reciprocating features and, at the same time, be adjustable to the speed and suitable members of any printing device.

Another object of this invetnion is to provide an automatic gumming machine which will function to feed paper elements in an unbroken process, in single sheets, into further progressive functions, such as gumming, folding, or printing theron, as may be desired. This invention includes means for gumming the labels, either over the whole surface or on a narrow strip thereof, as desired, and then folding the label along a suitable line exactly correct for applying the label to such fabric as hosiery and the like.

Other objects of this invention will appear from the following detailed description of the device and as disclosed in the three sheets of drawings which are herewith made a part of this application.

In the drawings—

Figure 1 illustrates a sectional side elevational view of the gum labeling machine or device.

Figure 2 represents a top plan view of the gum labeling machine.

Figure 3 represents a sectional elevational view to an enlarged scale of a portion of the gum labeling device disclosing the cooperation of the roller for applying the gum with the elastic friction roller and the groove wheels for bending the labels.

Figure 4 represents a vertical sectional view of the gum labeling device taken along line 4—4, Figure 1.

Figure 5 illustrates a sectional view of Figure 1 taken along line 55.

Figure 6 represents a side elevational view of the rear end of the gum labeling machine disclosing the label after it is delivered in gummed and folded condition.

Figure 7 illustrates a perspective view of the forward end of the gum labeling machine disclosing particularly the control spring or push rod in combination with the push bar for forcing the labels into feeding position.

Figure 8 illustrates a perspective view of the lower end of the curved label platform showing the serrated portions for receiving and retaining the labels in a position whereby but one label or sheet will be allowed to pass the elastic friction roller at one time.

Figure 9 represents a sectional view of Figure 1 taken along line 9—9.

Figure 10 represents a sectional view of Figure 1 taken along line 10—10, and discloses means for adjustment to the width of the label.

Numeral 1 designates a main body portion made of any suitable material for the purpose of supporting the members of a gum labeling machine and may be provided with leg portions 2 adapted to be fastened to the floor or other foundation member, as may be desired, by means of fastening bolts 3. The main body portion 1 may be located in any desired position wherever the gum labeling machine is needed and can be either attached to the floor or otherwise without affecting the merits of this invention.

It is preferred, in this invention, to construct the gum labeling device having members for receiving and holding labels in position for feeding at the forward end of the machine, comprising a threaded adjustment screw 4 of suitable length adapted to be held firmly in interlocked relationship with the main body portion 1 by means of an extension 5 and a lock nut 6 or other suitable fastening device. A top spring member 7, made

of any suitable material, such as spring steel, and adapted to hold the labels back into position, is adjustably mounted on the screw member 4, while a cooperating curved feeding platform 8 for holding the labels in operative relationship, is also adjustably mounted on the screw 5 by means of an element 9 which functions to bend the platform 8 into the desired shape for accommodating the labels. It is preferred, in this invention, to form the free end of the stop spring 7 with a downwardly extending portion 10 for the purpose of aiding in holding the labels 11 previous to the feeding operation in proper operative relationship to each other. As an additional means for maintaining the labels in position for feeding into the gumming and bending members and for adjustment to the width of the labels, clamping elements 12 and 13 are provided on each side of the platform 8 having adjustable means 14 and 15 connected thereto for the purpose of adjusting to the width of the paper or label.

In order to maintain proper tension against the bundle of labels or paper 11 being delivered into the gumming and folding members, the feeding platform 8 is provided with an opening 16 through which is adapted to extend freely a push rod 17 made of any suitable material, such as spring steel, and adapted to be securely fastened at its free upper end which extends through the opening 16 to a push bar member 18, which may be made of any suitable material and formed preferably of triangular shape, the push rod 17 being attached thereto by means of rivets or other fastening elements 19. The lower end of the push rod 17 is adapted to be fastened securely to a member 20 pivotally mounted upon suitable bracket portions 21 and 22 securely fastened to the main body supporting member 1.

The labels 11 are arranged to be supported upon the curved feeding platform 8 approximately as disclosed in Figure 1. The means for delivering one label at a time into the gumming and folding members comprises a friction roler 23 pivotally mounted upon upwardly extending portions 24 of the main body element 1 and preferably covered by a rubber layer 25, which will function to act in cooperation with a rubber cushion 26 for controlling the tension against the labels as they are delivered into the mechanism for gumming and folding. The rubber cushion 26 is preferred to be connected at one edge to the main body portion 1 by means of suitable tie bolts 27, the free end of the cushion 26 being supported on an auxiliary cushion 28 which tends to raise the free end of the cushion 26 above the main body portion 1, the cushion 28 being readily removable and replaced by another rubber cushion of different thickness, thereby providing means for adjusting the tension of the cushion 26 against the lower end of the feeding platform 8. In order to maintain the cushion element 28 in operative position, a bar 71 is adapted to be removably fastened to the main body portion 1 by means of bolt and nut extensions 72. It is understood that any suitable device for adjusting the tension of the rubber cushion 26 may be adopted without affecting the merits of this invention. The lower or delivering edge of the curved feeding platform 8 is adapted to be arranged so that it will extend between the friction roller surface 25 and the rubber cushion tension device 26, as clearly disclosed in Figure 3 at 29, having slightly up-turned edges at that point in order to give the label 30 the proper direction or motion as it is separated from the main bundle of labels 11. In order to assure that but one label 30 will be delivered between the friction surface 25 of the roller 23 and the lower portion of the curved feeding platform 8, a plurality of serrations 31ª are formed in the feeding platform 8, as clearly disclosed in Figure 3. The serrations are so located that, in cooperation with the friction roller 23 and the tension cushion 26, they will function to allow but one label, as at 30, to pass into the gumming mechanism. A limiting or guiding bar 31 is adapted to be loosely positioned above the bundle of labels 11, as clearly disclosed in Figure 3, and it is preferred that it be pivotally mounted, as at 32, on the main body portion 1.

The label 30 in passing from the feeding platform 8 is received on the gum labeling roller 33, which is adapted to have peripherally arranged on its surface a suitable gumming pad, such as rubber 34. The roller 33 may be made of any suitable material and is pivotally mounted upon the main body portion 1, and functions to revolve in a suitable gumming liquid 35 which is held in a container 36 constructed of a proper material and supported on the main body portion 1 of the device by means of a hanger 37 attached to the main body portion 1 by bolts 38. As an aid in properly delivering the label 30 on the gumming roller 33, a guide roll 60 is supported upon a spindle 61 directly over the gumming roll 33, the spindle 61 being rotatably mounted in the side portions 24 of the main body portion 1. The gumming members are arranged so that the label 30 may be gummed on a whole surface or a narrow strip, as desired. This is accomplished by providing auxiliary roller and pad elements 39 and 40, preferably supported on a spindle 41 which is pivotally mounted in the container 36. The roller pad portions 39 and 40 are adapted to be slidably positioned at desired points along the spindle 41 by means of bracket elements 42 and 43 which may be adjusted to the spindle 41 by means of set screw elements 44 and 45. The

roller pad elements will function to revolve in the liquid gum 35 and, being in contact with the pad 34 on the revolving roller 33, will transfer thereto the gumming material for the labels. From the gumming mechanism, the label 30 will pass to the folding members, which consist primarily of a plurality of groove rollers 46, 47 and 48 suitably keyed to spindle elements 49, 50 and 51, which are rotatably mounted on the extensions 24 to the main body portion 1 of the device. Arranged in cooperative relationship with the rollers 46, 47 and 48 is a bending bar 52 made of any suitable material and securely fastened to the main body portion 1 by means of bolt extensions 53 and 54. The rollers and bending bar are formed so as to produce a gradual bending effect in the label until it is delivered from the gumming and bending machine upon preferably a travelling belt or rope 55, which functions to revolve upon a pulley element 56.

The actuating force for driving the machine may be of any suitable type, either a mechanically arranged motor or by means of manual manipulation. In Figure 4, the handle element 57 is disclosed keyed to the shaft or spindle 58 upon which the roller 23 is mounted. On the other end of the spindle 58 is disclosed a pulley 59 which may be utilized, as desired, for connection to some source of mechanical driving power. A series of driving gears connect the rollers 23, 60 and 33, and the grooved bending pulleys 46, 47 and 48, as clearly disclosed at 62, 63, 64, 65, 66, 67, 68, 69 and 70, all of the gearing being suitably mounted either on the spindles of the rollers or on the side extensions 24 of the main body portion 1.

In operation this invention provides a gum labeling and folding device which may be made of any convenient size and will function to gum each label, either over the whole surface or a narrow strip, as may be needed, and then will fold the label preferably in the middle, and will deliver the label from the device entirely prepared for attachment to such fabrics as hosiery, and also boxes or the like. A bundle of labels is maintained continuously in position in the device, as clearly disclosed at 11. The resilient friction roller 25 may be made to revolve in one direction, carrying with it the foremost contacting label, the latter being carried along until entirely free from the labels underneath and finally delivering the label beyond the platform 8 on to a gumming wheel 33, or the label may be continued on through without being submitted to the gumming process. In accomplishing this result, the feeding platform 8 is curved so as to cause the pack of labels to careen, the individual labels thus arranging themselves in cascade formation. The labels will naturally follow the curved platform to a point approximately underneath the friction roller 23, where the first label is drawn through by means of frictional contact. The second label cannot follow while the roller 23 is still pushing the first label, owing to the fact that this second label and a number of the succeeding labels are held by the serrations 31a. As soon as the first label has passed the roller 23, the end of the resilient platform snaps up into direct contact with the roller 23, the slight jar dislodging the foot of the second label from engagement with the serration in which it is seated, said label then sliding down into contact with the roller 23. At the same time, the labels immediately behind behind the second label, and which are also detained, are dislodged and each moves into the next advance serration. In order to maintain the correct frictional contact for accomplishing the purpose, the rubber or resilient pad members 26 and 28 are operatively arranged directly beneath the roller or delivery end of the feeding platform. After passing from the frictional roller 23, the label may, if desired, be gummed by the rotatable element 33 and then pass through the bending or folding roller elements to the receiving members, which may be a traveling cord. The label, in leaving the gumming roller 33, is delivered upon a wedged shape bar 52 and is caught up by the first grooved wheel 46, which is slightly grooved and is then gradually passed on to the deeper grooved wheels 47 and 48 and finally on to the traveling cord. It is to be understood that alterations and substitutions may be made in the above disclosure, both in the specification and drawings within the scope of the appended claims without effecting the merits of this invention.

What I claim is:

1. In a gumming and folding apparatus for labels, a main body portion, adjustable means on the main body portion for supporting a bundle of labels gumming and folding elements mounted on the main body portion, means for delivering one label at a time from the bundle into the gumming and folding elements, the support for the bundle of labels, comprising a suitably curved feeding platform adjustably mounted at one end and on a threaded element extending from the main body portion, the other end being free, means mounted upon the feeding platform for adjusting to the width of the labels, auxiliary means for holding the labels in operative relationship to the feeding platform consisting of a member adjustably mounted at one end on the threaded element, the other end being free and having a downwardly extending portion for holding the labels in position.

2. In a gumming and folding apparatus for labels, a main body portion, adjustable means on the main body portion for supporting a bundle of labels, gumming and folding

elements mounted on the main body portion, means for delivering one label at a time from the bundle into the gumming and folding elements, the support for the bundle of labels, comprising a suitably curved feeding platform adjustably mounted at one end and on a threaded element extending from the main body portion, the other end being free, means mounted upon the feeding platform for adjusting to the width of the labels, auxiliary means for holding the labels in operative relationship to the feeding platform consisting of a member adjustably mounted at one end on the threaded element, the other end being free and having a downwardly extending portion for holding the labels in position, means for holding the bundle of labels on the feeding platform under tension consisting of a resilient element mounted at one end on the main body portion, the other end extending through an opening in the feeding platform and fastened to a bar member which functions to contact with the labels.

3. In a gumming and folding apparatus for labels, a main body portion, adjustable means on the main body portion for supporting a bundle of labels, gumming and folding elements mounted on the main body portion, means for delivering one label at a time from the bundle into the gumming and folding elements, the support for the bundle of labels, comprising a suitably curved feeding platform adjustably mounted at one end and on a threaded element extending from the main body portion, the other end being free, means mounted upon the feeding platform for adjusting to the width of the labels, auxiliary means for holding the labels in operative relationship to the feeding platform consisting of a member adjustably mounted at one end on the threaded element, the other end being free and having a downwardly extending portion for holding the labels in position, means for holding the bundle of labels on the feeding platform under tension consisting of a resilient element mounted at one end on the main body portion, the other end extending through an opening in the feeding platform and fastened to a bar member which functions to contact with the labels, guiding means for the labels located near the free end of the feeding platform, one end of which is pivotally mounted upon the main body portion, the other end being free to contact with the labels.

4. In a gumming and folding apparatus for labels, a main body portion, means on the main body portion for supporting a bundle of labels, gumming and folding elements mounted on the main body portion, means for delivering one label at a time from the bundle into the gumming and folding elements, the support for the bundle of labels comprising a feeding platform mounted at one end on an extension from the main body portion, the other end being free, the means for delivering the label comprising a friction roll rotatably mounted in the main body portion and located in such a manner that it will tend to force one label at a time from the free end of the feeding platform, resilient means supported by the main body portion for providing tension between the friction roller label and free end of the feeding platform.

5. In a gumming and folding apparatus for labels, a main body portion, means on the main body portion for supporting a bundle of labels, gumming and folding elements mounted on the main body portion, means for delivering one label at a time from the bundle into the gumming and folding elements, the support for the bundle of labels comprising a feeding platform mounted at one end of an extension from the main body portion, the the other end being free, the means for delivering the label comprising a friction roll rotatably mounted in the main body portion and located in such a manner that it will tend to force one label at a time from the free end of the feeding platform, resilient means supported by the main body portion for providing tension between the friction roller label and free end of the feeding platform, the gumming elements for receiving the label comprising a guide roll and gumming wheel rotatably mounted in the main body portion, a container for holding the gum and means within the container for contacting with the gumming wheel in such a manner that the label may be gummed as desired.

6. In a gumming and folding apparatus for labels, a main body portion, adjustable means on the main body portion for supporting a bundle of labels, gumming and folding elements mounted on the main body portion, means for delivering one label at a time from the bundle into the gumming and folding elements, the support for the bundle of labels, comprising a suitably curved feeding platform adjustably mounted at one end and on a threaded element extending from the main body portion, the other end being free, the means for delivering the label comprising a friction roll rotatably mounted in the main body portion and located in such a manner that it will tend to force one label at a time from the free end of the feeding platform, resilient means suported by the main body portion for providing tension between the friction roller label and free end of the feeding platform, a gumming device for receiving the label comprising guide roll and gumming wheel rotatably mounted in the main body portion, a container for holding the gum and means within the container for contacting with the gumming wheel in such a manner that the label may be gummed as desired, means mounted on the main body portion for folding the labels comprising a plurality of

grooved rolls in cooperation with a bending bar.

7. In a gumming and folding apparatus for labels, a main body portion, adjustable means on the main body portion for supporting a bundle of labels, gumming and folding elements mounted on the main body portion, means for delivering one label at a time from the bundle into the gumming and folding elements, the support for the bundle of labels, comprising a suitably curved feeding platform adjustably mounted at one end and on a threaded element extending from the main body portion, the other end being free, the means for delivering the label comprising a friction roll rotatably mounted in the main body portion and located in such a manner that it will tend to force one label at a time from the free end of the feeding platform, resilient means supported by the main body portion for providing tension between the friction roller label and free end of the feeding platform, a gumming device for receiving the label comprising guide roll and gumming wheel rotatably mounted in the main body portion, a container for holding the gum and means within the container for contacting with the gumming wheel in such a manner that the label may be gummed as desired, means mounted on the main body portion for folding the labels comprising a plurality of grooved rolls in cooperation with a bending bar, the rolls being arranged in series and each roll having a different depth of groove.

8. In a gumming and folding apparatus for labels, a main body portion, adjustable means on the main body portion for supporting a bundle of labels, gumming and folding elements mounted on the main body portion, means for delivering one label at a time from the bundle into the gumming and folding elements, the support for the bundle of labels, comprising a suitably curved feeding platform adjustably mounted at one end and on a threaded element extending from the main body portion, the other end being free, the means for delivering the label comprising a friction roll rotatably mounted in the main body portion and located in such a manner that it will tend to force one label at a time from the free end of the feeding platform, resilient means supported by the main body portion for providing tension between the friction roller label and free end of the feeding platform, a gumming device for receiving the label comprising guide roll and gumming wheel rotatably mounted in the main body portion, a container for holding the gum and means within the container for contacting with the gumming wheel in such a manner that the label may be gummed as desired, means mounted on the main body portion for folding the labels comprising a plurality of grooved rolls in cooperation with a bending bar, the rolls being arranged in series and each roll having a different depth of groove, means mounted on the main body portion for receiving the label in folded position.

9. In a gumming and folding apparatus for labels, a main body portion, adjustable means on the main body portion for supporting a bundle of labels, gumming and folding elements mounted on the main body portion, means for delivering one label at a time from the bundle into the gumming and folding elements, the support for the bundle of labels, comprising a suitably curved feeding platform adjustably mounted at one end and on a threaded element extending from the main body portion, the other end being free, the means for delivering the label comprising a friction roll rotatably mounted in the main body portion and located in such a manner that it will tend to force one label at a time from the free end of the feeding platform, resilient means supported by the main body portion for providing tension between the friction roller label and free end of the feeding platform, a gumming device for receiving the label comprising guide roll and gumming wheel rotatably mounted in the main body portion, a container for holding the gum and means within the container for contacting with the gumming wheel in such a manner that the label may be gummed as desired, means mounted on the main body portion for folding the labels comprising a plurality of grooved rolls in cooperation with a bending bar, the rolls being arranged in series and each roll having a different depth of groove, means mounted on the main body portion for receiving the label in folded position consisting of a traveling cord.

10. In gumming and folding apparatus for labels, a feeder for the labels comprising a friction feed roller and a support for a stack of labels, said support having a sloping surface whereby said stack of labels is caused to careen, positioning the individual labels in cascade formation with the foremost label in contact with said feed roller, said support having a movable lower end, normally in yielding contact with said roller, said end being biased away from said roller by the passage therebetween of the foremost label when fed by said roller, said feed roller and the end of said support being so positioned that the latter flies back into contact with the roller upon completion of the passage of a label, jarring the next succeeding label into contact with said feed roller.

11. In gumming and folding apparatus for labels, a feeder for the labels comprising a friction feed roller, and a support for a stack of labels, said support having a sloping surface whereby said stack of labels is caused to careen, positioning the individual labels in cascade formation with the foremost labels in contact with said feed roller, said support

having a movable lower end provided with serrations for detaining a number of the advance labels in said cascade formation, said lower end being in normally yielding contact with said feed roller, said end being biased away from said roller by the passage therebetween of the foremost label when fed by said roller, said feed roller and the lower end of said support being so positioned that the latter flies back into contact with the roller upon completion of the passage of a label, jarring the next succeeding label from its serration into contact with said feed roller.

12. In gumming and folding apparatus for labels, a feeder for the labels comprising a friction feed roller and a support for a stack of labels, said support having a sloping surface whereby said stack of labels is caused to careen, positioning the individual labels in cascade formation with the foremost label in contact with said feed roller, said support having a movable lower end and a resilient cushion beneath said lower end for normally maintaining it in yielding contact with said roller, said end being biased away from said roller by the passage therebetween of the foremost label when fed by said roller, said feed roller and end of the support being so positioned that the latter flies back into contact with the roller after completion of the passage of the label, jarring the next succeeding label into contact with said feed roller.

In testimony whereof I affix my signature.

MAXWELL ZURNDORF.