Jan. 26, 1937. A. ROSENTHAL 2,069,115

LABEL FOLDING MACHINE

Filed Aug. 24, 1935 3 Sheets-Sheet 1

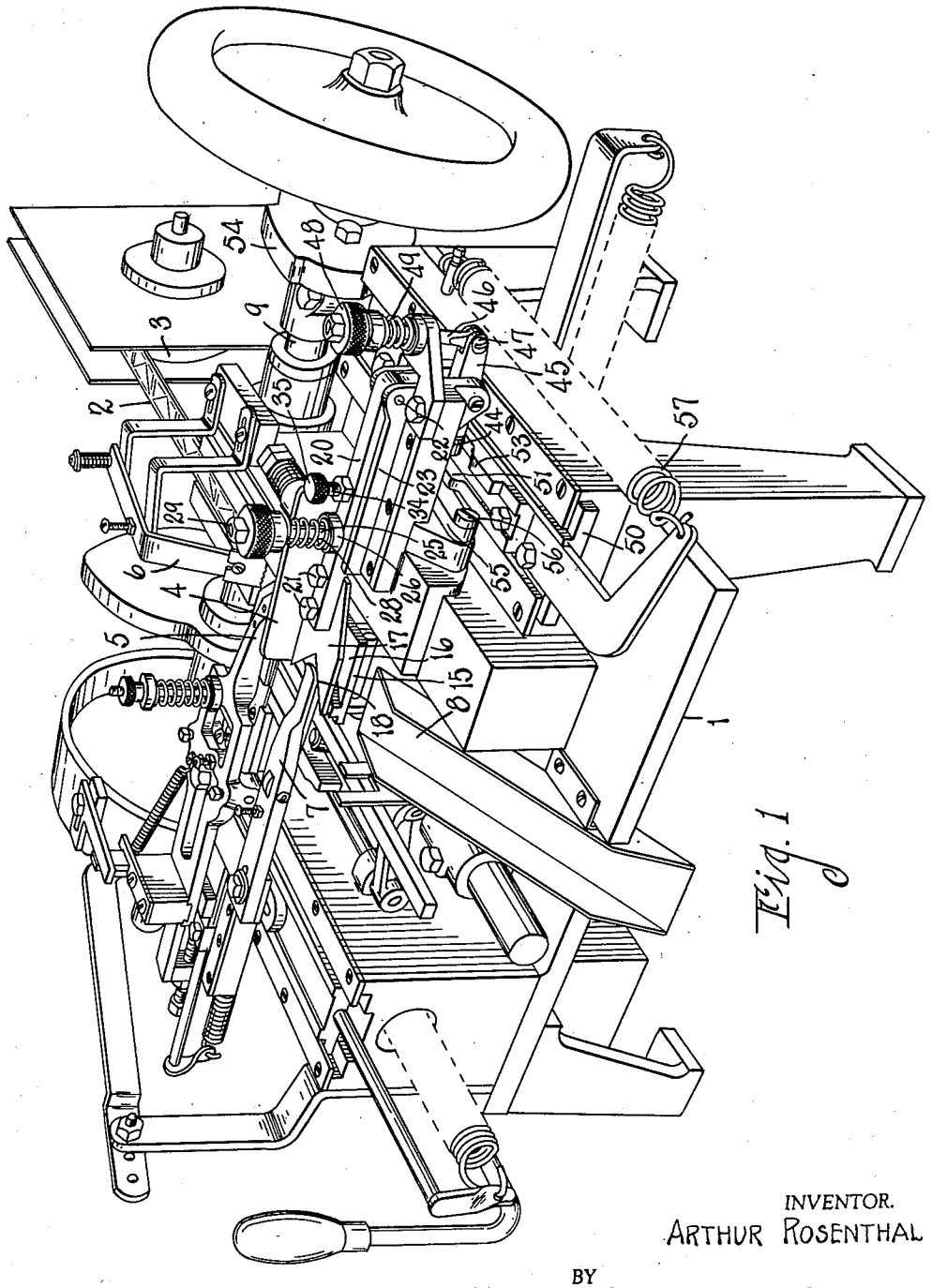


Fig. 1

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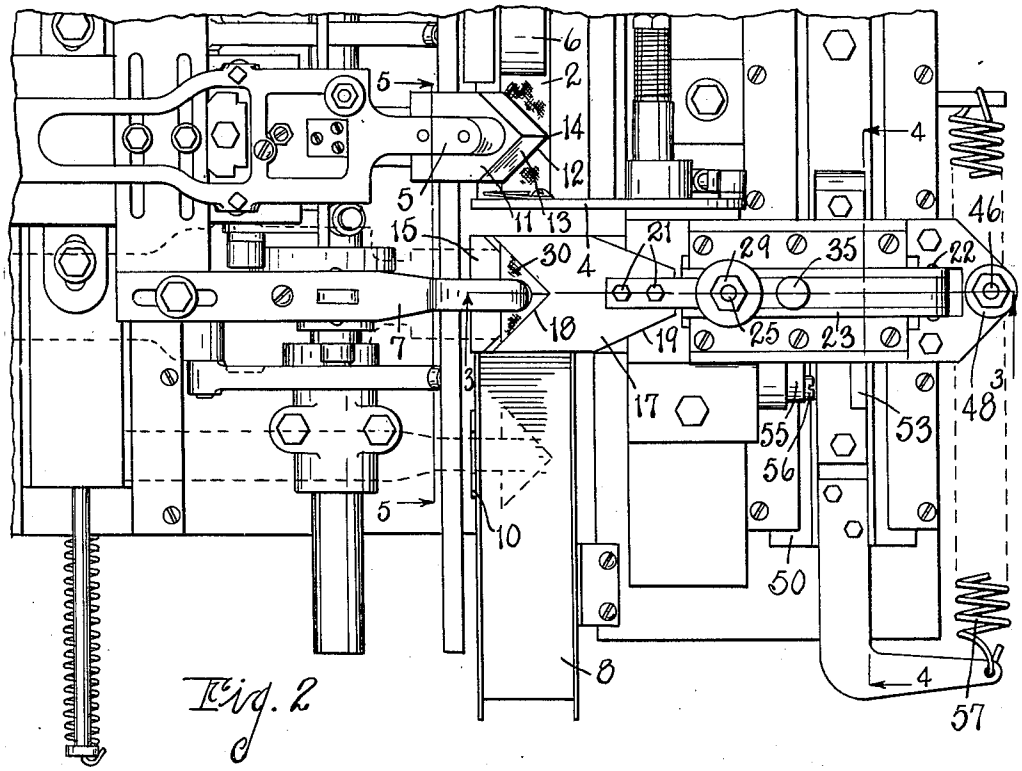


Fig. 2

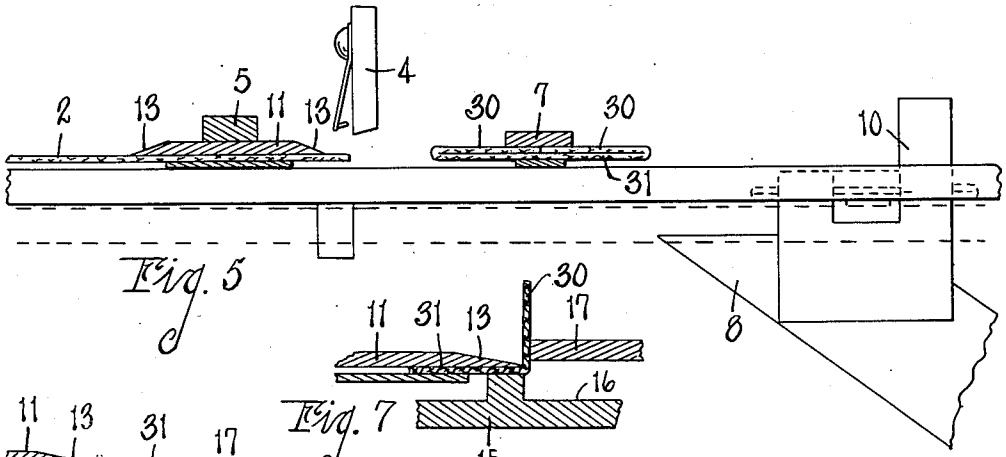


Fig. 5

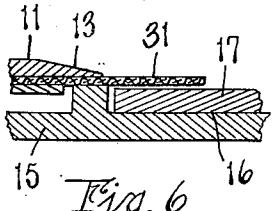


Fig. 6

Fig. 7

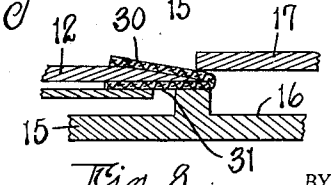


Fig. 8

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LABEL FOLDING MACHINE

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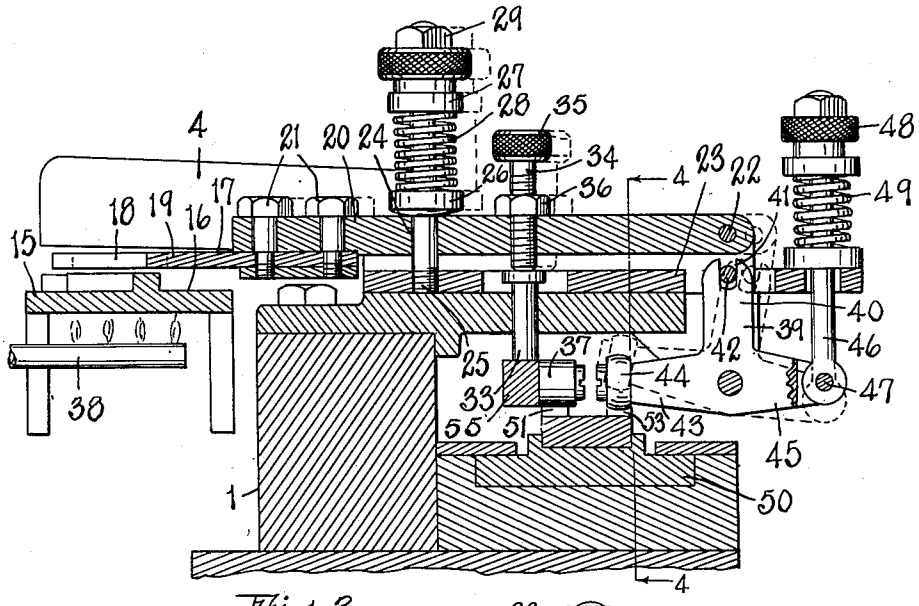


Fig. 3

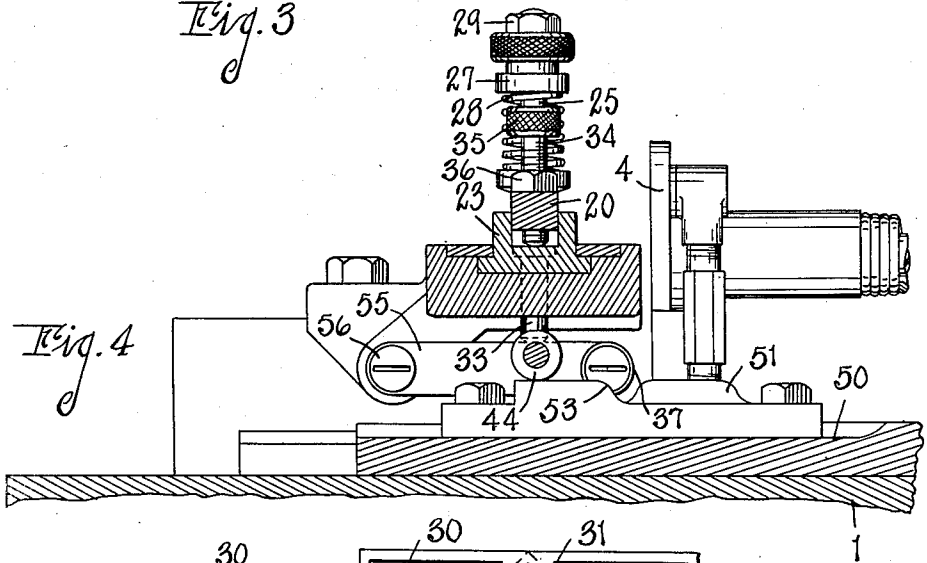


Fig. 4

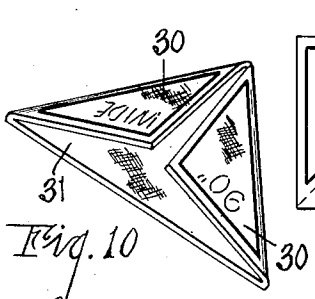


Fig. 10

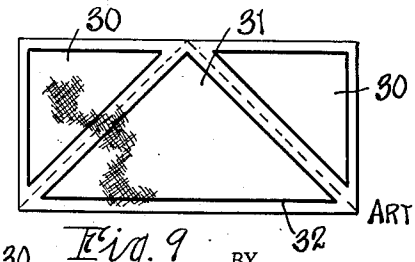


Fig. 9

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Patented Jan. 26, 1937 2,069,115

UNITED STATES PATENT OFFICE

2,069,115

LABEL FOLDING MACHINE

Arthur Rosenthal, Grand Rapids, Mich., assignor to The Rose Patch & Label Company, Grand Rapids, Mich.

Application August 24, 1935, Serial No. 37,636

9 Claims. (Cl. 270—61)

This invention relates to machines for cutting and folding cloth labels or the like and has particularly to do with labels for application to the corners of sheets or towels or the like.

The objects of the invention are:

First, to produce a new and improved apparatus for cutting off labels of the above specified character and folding over the corners to provide a label which slips over the corner of a towel or sheet and may be sewed in place by a single line of stitching running diagonally across the corner.

Second, to provide such a machine in which the label is severed from a label strip and is grasped by label feeding and holding jaws having a fold form thereon of a triangular shape, which jaws feed the label to folding devices.

Third, to provide such an apparatus which is simple in construction and in operation and which may be operated inexpensively.

Fourth, to provide fold forms and folders that may be employed with label cutting and folding machines already existent.

Further objects and advantages pertaining to detail and economies of construction and operation will appear from the description to follow.

A preferred embodiment of my invention is illustrated in the accompanying drawings, in which:

Fig. 1 is a perspective view of my improved machine.

Fig. 2 is a partial plan view showing the operating parts of the machine.

Fig. 3 is a detail sectional view through the folding apparatus, taken on the line 3—3 of Fig. 2.

Fig. 4 is a detail sectional view taken on the line 4—4 of Fig. 3.

Fig. 5 is a diagrammatic plan view taken on the line 5—5 of Fig. 2, showing the holding jaws and the jaws for folding the label after it has been folded.

Fig. 6 is a detail sectional view showing the label in position to be folded.

Fig. 7 is a view similar to Fig. 6, showing the label partially folded.

Fig. 8 is a view similar to Fig. 6, showing the last step in the folding of the label.

Fig. 9 is a plan view of a label of the type to be operated upon by the machine before folding.

Fig. 10 is a perspective view of the finished folded label.

Referring to Fig. 1, I there show a label cutting and folding machine which is of the general type of that shown in Patent No. 1,528,511 granted March 3, 1925, to Martin Rosenthal and myself for Label cutting and folding machine. It is unnecessary for purposes of this application to describe the operation of such machine in detail and I will refer to the operation in general only.

The machine is mounted on a suitable base 1 and a strip of labels 2 is fed from a supply roll 3 to a cutting knife 4. Label feeding and holding jaws 5 grasp the label and advance it past the cutting knife 4 where it is set, the label having first been balanced by any suitable balancing means such as the foot 6 or by a balancing means such as that shown in my Patent No. 1,984,657, issued December 18, 1934, for Apparatus for cutting and folding labels.

After the individual label has been severed from the strip 2, jaws 7 feed it to a chute 8 or any suitable packing means.

The apparatus is driven by a suitable drive shaft 9 and is so operated that the holding and feeding jaws 5 grasp the end of the label strip and advance it through the cutter to the position shown in dotted lines in Fig. 2. The cutter then operates, severing an individual label which is operated upon by folding means. The label holding jaws are withdrawn from the folder and are moved around the cutter back to the position shown in full lines in Fig. 2 to repeat the operation.

When the label holding and feeding jaws 5 advance to grasp the label, the jaws 7 grasp the folded label, and when the cutter 4 opens and the jaws feed the label strip through the cutter, the jaws 7 feed the label to the position shown in dotted lines in Fig. 2, and when the jaws 5 and 7 are moved to the left as in Fig. 2 to withdraw them from the folder, the label is scraped from the jaws 7 by means of the member 10.

In my invention, I provide a fold form 11 on the upper one of the pair of jaws 5. This fold form is of triangular shape as shown at 12 and the upper sides of its edges are beveled as at 13.

The fold form on the jaws is disposed so that as the jaws grasp the individual labels for feeding, the triangular fold form is disposed above and transversely of the individual label and the apex 14 of the triangular fold form is located substantially at the edge of the individual label.

The severed label is then fed to a bed 15 which is recessed at 16 to receive a folder 17. The folder 17 has a triangular notch therein and is so disposed that when the jaws 5 feed the label past the cutter the fold form 12 is disposed on the bed 16 above and in register with the triangular notch 18 in the fold form 17.

The fold form 17 comprises a flat metallic member 19 which is suitably bolted on an arm 20 with bolts 21. The arm 20 is pivoted at 22 on a slide 23 and is apertured at 24 to receive a bolt 25 having thereon collars 26 and 27 between which is located a coiled spring 28 held in place by the collars which are in turn held in place by a nut 29 and the arm 20. The spring 28 is a compression spring normally tending to hold the folder in a depressed position with the top of the member 19 substantially flush with the bed 16.

Means are provided for raising the folder past the fold form 12. When the holding jaws 5 with the label are positioned above the folder, the member 19 passes up past the fold form 12 as shown in Fig. 7, folding up the corner 30 of the label 31. The label 31 has a face 32 on which a trade-mark or other device may be reproduced and the corners 30 may carry other notations. As shown in Fig. 10, the label is made specifically for use with sheets, one corner indicating the number of inches of the width of the sheet and the other side indicating that the figure represents the length. The fold form 12 covers the back of the face 32 and the corners 30 are the portion bent up.

The folder 17 is raised by means of a plunger 33 which contacts a bolt 34 through the arm 20. This bolt is screw threaded in the arm as shown in Fig. 3 and is provided with a knurled adjusting knob 35 and a lock nut 36. The plunger 33 is provided with a cam follower 37 by means of which the plunger is raised to raise the folder 18 to the position shown in Fig. 7.

After the folder has been raised to the position shown in Fig. 7, it is advanced over the edge of the fold form, bending the corner 30 of the label to the position shown in Fig. 8 and creasing the same. The spring 28 holds the portion 19 of the folder 18 yieldingly against the label which is folded around the fold form 12 as shown, and heat is applied by means of the gas jets 38.

The advancing of the folder is effected by a bell crank 39 having a vertical arm 40 slotted at 41 to engage a pin 42 on the slide 23. A horizontal arm 43 has a cam follower 44 and a raising of this arm 43 moves the folder back from the fold form, whereas a lowering of the arm 43 forces the folder 18 to the position shown in Fig. 8.

A horizontal arm 45 is provided on the bell crank lever and has pivoted thereto a connecting rod 46 with a pin 47 and a knurled adjusting nut 48 contacting a compression spring 49 which normally tends to raise the arm 45 and advance the folder to the position shown in Fig. 8.

A cam slide 50 is provided having a cam 51 for engaging the cam follower 37 and a cam 53 to engage the cam follower 44. These cams are so disposed that as the slide 50 slides toward the front as in Fig. 1, impelled by the cam 54 on the drive shaft 9, the cam 51 first engages the cam follower 37 and raises the folder to the position shown in Fig. 7. Thereafter the cam follower 44 rides down on the cam 53, permitting the spring 49 to force the folder 18 to the position shown in Fig. 8.

The plunger 33 is connected by coacting engagement with lever 55 which is pivoted at one end at 56 and has the cam follower 37 at its other end.

A spring 57 holds the cam slide 50 against the cam 54, causing it to return as the machine completes its cycle and causing the folder 18 to assume the position of Fig. 6 preparatory to receiving another label.

The device just described is timed to operate after a label has been severed and fed to the position shown in the dotted lines in Fig. 2, the operation is effected automatically, and the folding jaws 5 are then withdrawn to take another label.

It will be seen that the particular fold form can be substituted for the fold forms on the general type of machine here described and that the particular folding apparatus can be easily substituted for the folding apparatus illustrated on the machines in the above mentioned patents.

I have shown a preferred embodiment of my invention and wish to claim the same specifically and also broadly as pointed out in the appended claims.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:

1. In a label cutting and folding machine of the type in which a label strip is fed to the machine and individual labels are cut therefrom, the combination of label holding jaws having a triangular fold form thereon with the upper sides of its edges beveled, said jaws being disposed to grasp individual labels with the fold form above and extending transversely of the individual label and with its apex disposed substantially at an edge of the label, a folder having a triangular notch therein complemental to the fold form, means for disposing said label holding jaws with a label therein with the fold form above and in register with the triangular notch in said folder, means for raising said folder past said fold form to bend up the corners of the label held in said jaws, comprising a plunger engaging said folder and having a cam follower thereon, means for advancing said folder over said fold form to bend back and crease said label over said fold form after said folder has been raised past said fold form, comprising a bell crank lever having a notched substantially vertical arm engaging a pin on said folder and a horizontal arm having a cam follower thereon and a cam slide having a cam to engage said cam follower on said plunger and a second cam disposed to engage said cam follower on said bell crank lever, said cams being timed to cause the operation of said raising means and then said advancing means, and means for yieldingly holding said folder in contact with said fold form during the advancing movement of said folder.

2. In a label cutting and folding machine of the type in which a label strip is fed to the machine and individual labels are cut therefrom, the combination of label holding jaws having a triangular fold form thereon with the upper sides of its edges beveled, said jaws being disposed to grasp individual labels with the fold form above and extending transversely of the individual label with its apex disposed substantially at an edge of the label, a folder having a triangular notch therein complemental to the fold form, a bed recessed to receive said folder with the top of the folder substantially flush with the bed, means for disposing said label holding jaws with a label therein on said bed with the fold form above and in register with the triangular notch in said folder, means for raising said folder past said fold form to bend up the corners of the label held in said jaws, means for advancing said folder over said fold form to bend back and crease said label over said fold form, means for yield-

ingly holding said folder in contact with said fold form during advancing movement thereof, and means for applying heat to the label during the creasing operation.

3. In a label cutting and folding machine of the type in which a label strip is fed to the machine and individual labels are cut therefrom, the combination of label holding jaws having a triangular fold form thereon and disposed to grasp individual labels with the fold form above and extending transversely of the individual label with its apex disposed substantially at an edge of the label, a folder having a triangular notch therein complemental to the fold form, a bed recessed to receive said folder with the top of the folder substantially flush with the bed, means for disposing said label holding jaws with a label therein on said bed with the fold form above and in register with the triangular notch in said folder, means for raising said folder past said fold form to bend up the corners of the label held in said jaws, means for advancing said folder over said fold form to bend back and crease said label over said fold form, means for yieldingly holding said folder in contact with said fold form during advancing movement thereof, and means for applying heat to the label during the creasing operation.

4. In a label cutting and folding machine of the type in which a label strip is fed to the machine and individual labels are cut therefrom, the combination of label holding jaws having a triangular fold form thereon and disposed to grasp individual labels with the fold form above and extending transversely of the individual label with its apex disposed substantially at an edge of the label, a folder having a triangular notch therein complemental to the fold form, means for disposing said label holding jaws with a label therein with the fold form above and in register with the triangular notch in said folder, means for raising said folder past said fold form to bend up the corners of the label held in said jaws, means for advancing said folder over said fold form to bend back and crease said label over said fold form, means for yieldingly holding said folder in contact with said fold form during advancing movement thereof, and means for applying heat to the label during the creasing operation.

5. In a label cutting and folding machine of the type in which a label strip is fed to the machine and individual labels are cut therefrom, the combination of label holding jaws having a triangular fold form thereon and disposed to grasp individual labels with the fold form above and extending transversely of the individual label with its apex disposed substantially at an edge of the label, a folder having a triangular notch therein complemental to the fold form, means for disposing said label holding jaws with a label therein with the fold form above and in register with the triangular notch in said folder, means for raising said folder past said fold form to bend up the corners of the label held in said jaws, and means for advancing said folder over said fold form to bend back and crease said label over said fold form.

6. In a label cutting and folding machine of the type in which a label strip is fed to the machine and individual labels are cut therefrom, the combination of label holding jaws having a triangular fold form thereon and disposed to grasp individual labels with the fold form extending transversely of the individual label with its apex disposed substantially at an edge of the label, a folder having a triangular notch therein complemental to the fold form, means for disposing said label holding jaws with a label therein with the fold form in register with the triangular notch in said folder, means for moving said folder past said fold form to bend up the corners of the label held in said jaws, and means for advancing said folder past said fold form to bend back and crease and press said label over said fold form, and means for applying heat to said label during the creasing and pressing operation.

7. In a machine for folding labels, the combination of label holding jaws having a triangular fold form thereon disposed to grasp individual labels with the fold form extending transversely of the individual label with its apex disposed substantially at the edge of the label, and means for folding and pressing the corners of the label over the triangular fold form, and means for applying heat to said label during the creasing and pressing operation.

8. In a label cutting and folding machine of the type in which a label strip is fed to the machine and individual labels are cut therefrom, the combination of label holding jaws having a shaped fold form thereon and disposed to grasp individual labels with the fold form extending transversely of the individual label, a folder having a notch therein complemental to the fold form, means for disposing said label holding jaws with a label therein with the fold form in register with the notch in said folder, means for moving said folder past said fold form to bend up the projecting portions of the label held in said jaws, and means for advancing said folder past said fold form to bend back and crease and press said label over said fold form, and means for applying heat to said label during the creasing and pressing operation.

9. In a machine for folding labels, the combination of label holding jaws having a shaped fold form thereon disposed to grasp individual labels with the fold form extending transversely of the individual label, and means for folding and pressing the projecting portions of the label over the shaped fold form, and means for applying heat to said label during the creasing and pressing operation.

ARTHUR ROSENTHAL.