March 18, 1952 H. E. RUE ET AL 2,589,512

MACHINE FOR CODING LABELS

Filed June 27, 1949 5 Sheets-Sheet 1

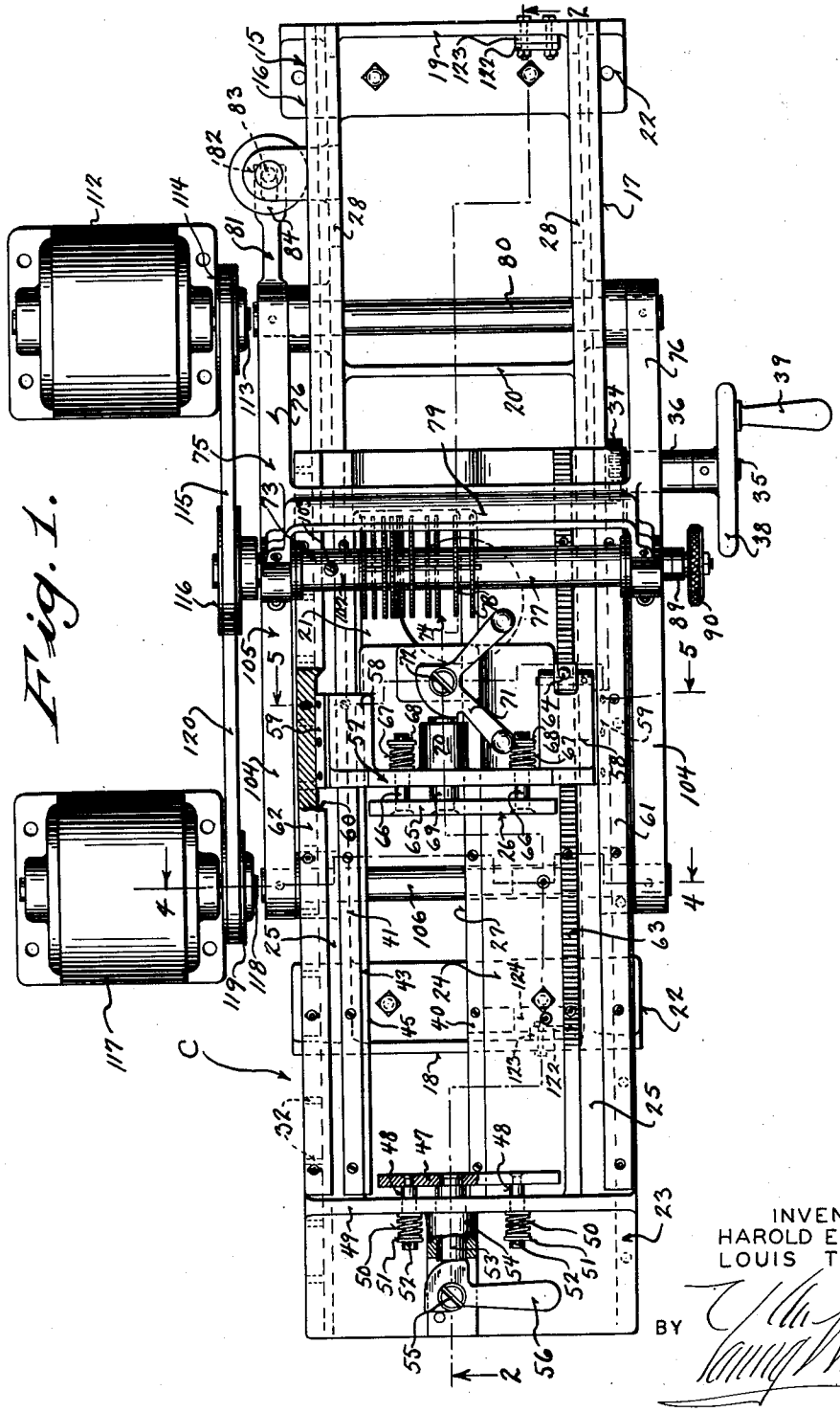


Fig. 1.

INVENTORS
HAROLD E. RUE
LOUIS TIGERMAN
BY
ATTORNEYS

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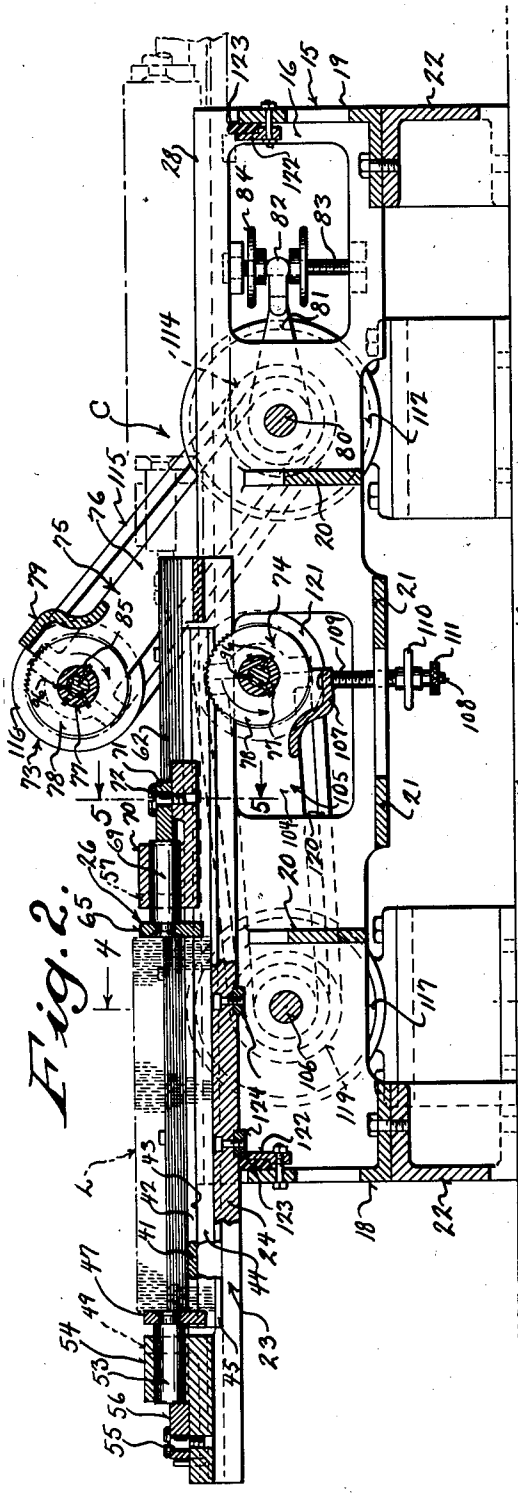


Fig. 2.

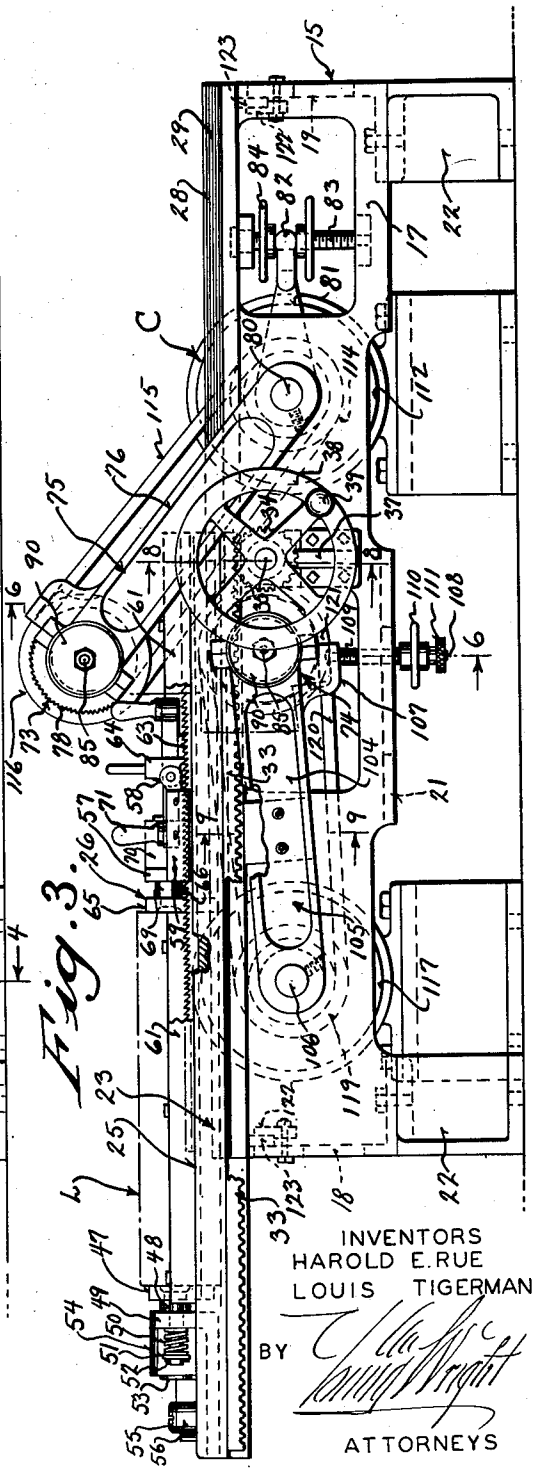


Fig. 3.

INVENTORS
HAROLD E. RUE
LOUIS TIGERMAN
BY
ATTORNEYS

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MACHINE FOR CODING LABELS

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Fig. 4.

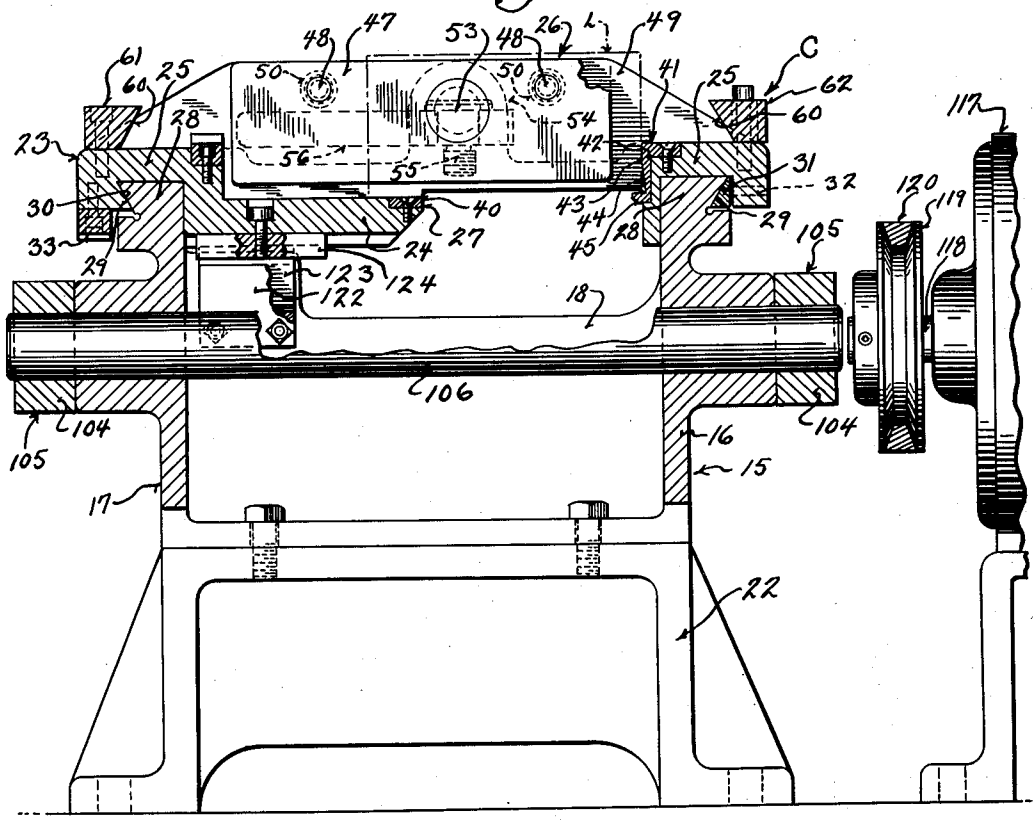
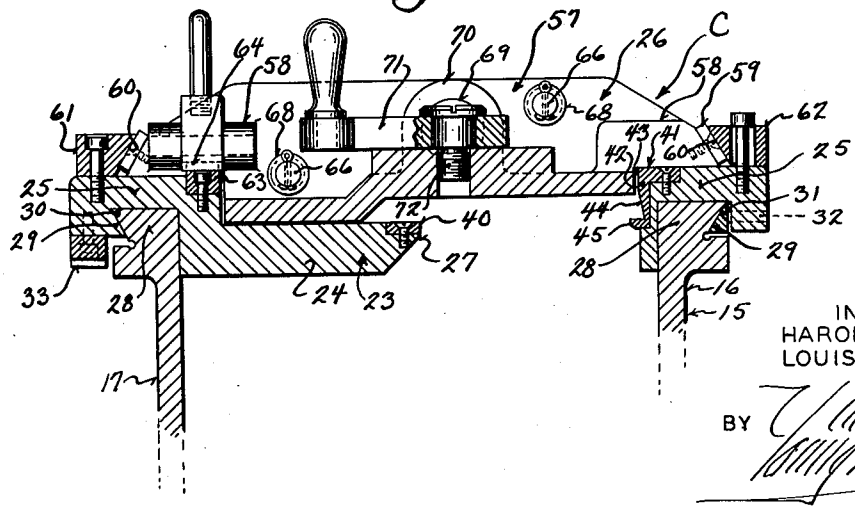


Fig. 5.



INVENTORS
HAROLD E. RUE
LOUIS TIGERMAN

BY

ATTORNEYS

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Fig. 6.

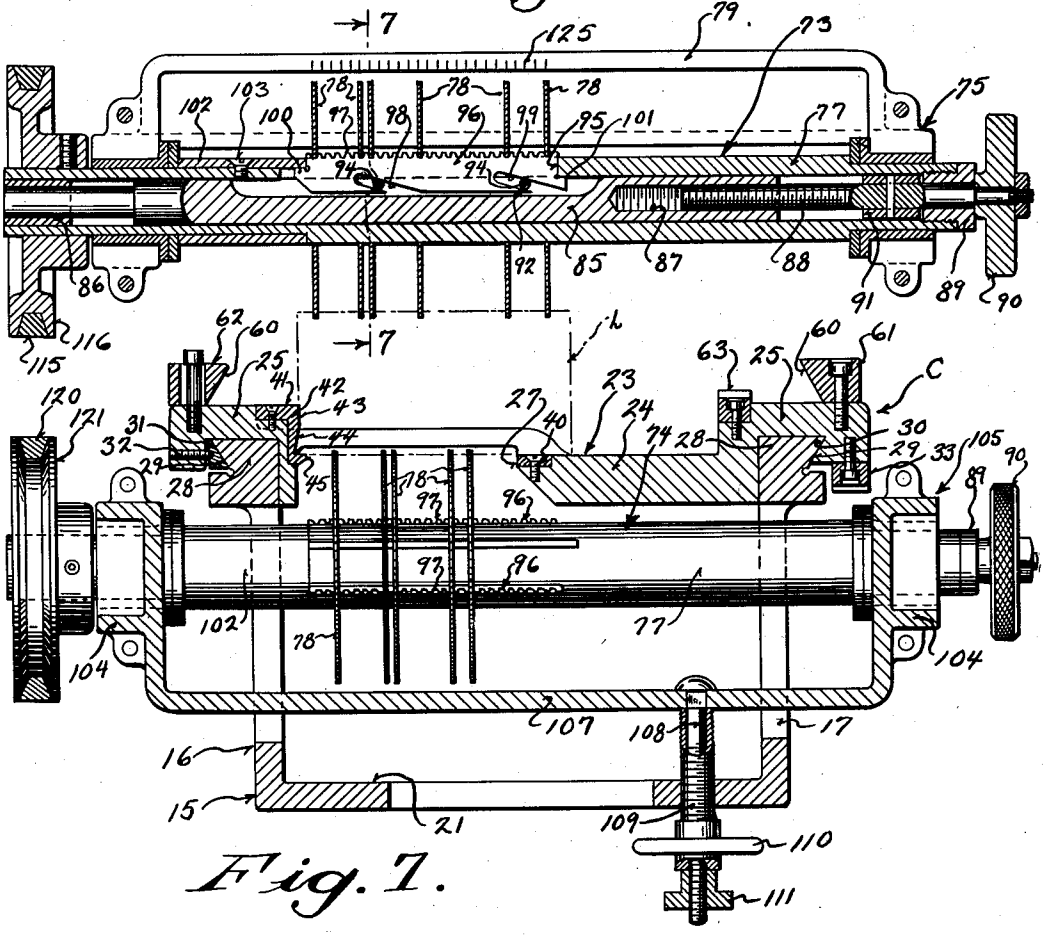
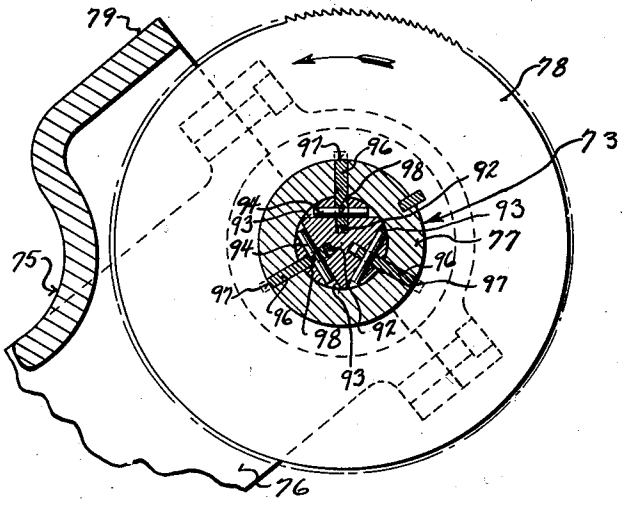


Fig. 7.



INVENTORS
HAROLD E. RUE
LOUIS TIGERMAN

BY

ATTORNEYS

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MACHINE FOR CODING LABELS

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Fig. 8.

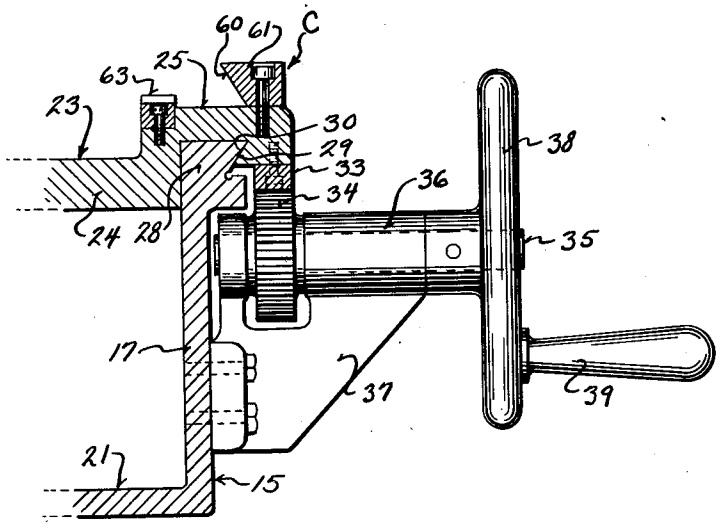


Fig. 9.

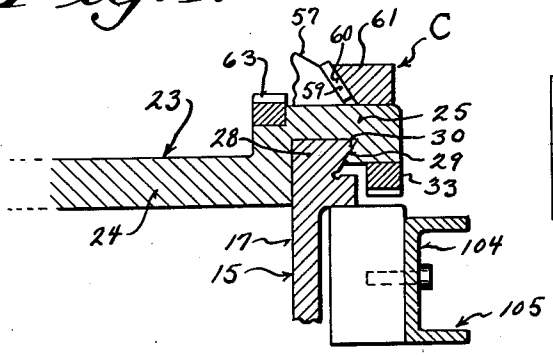


Fig. 10.

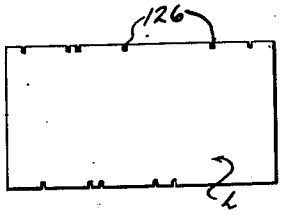
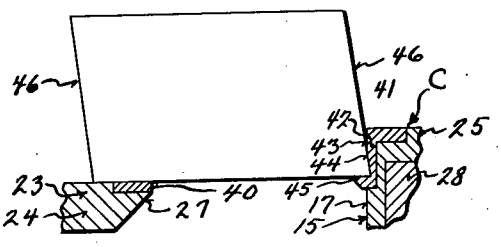


Fig. 11.



INVENTORS
HAROLD E. RUE
LOUIS TIGERMAN
BY
ATTORNEYS

Patented Mar. 18, 1952 2,589,512

UNITED STATES PATENT OFFICE

2,589,512

MACHINE FOR CODING LABELS

Harold E. Rue, Wauwatosa, and Louis Tigerman, Milwaukee, Wis., assignors to Pabst Brewing Company, Milwaukee, Wis., a corporation

Application June 27, 1949, Serial No. 101,632

4 Claims. (Cl. 164—64)

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This invention appertains to the marking of labels and more particularly to means for placing identification material on labels to permit the giving of information relative to the product contained in packages or bottles.

In the placing of consumer goods on the market (particularly perishable and edible products) it often becomes necessary for the manufacturers to know the exact identity of a certain package or container, such as, the date of the packaging or bottling of the product, the exact plant at which the packaging or bottling took place, the exact vats or the like from which the product was drawn and from what section of the country the ingredients of the product originated, and such other exact data needed according to the nature of the product being packaged or bottled.

It has been proposed to perforate labels to permit certain information to be given, such as the date of bottling or packaging. However, such information is not complete and perforated labels are not pleasing to the eye of the purchasing public.

One of the primary objects of this invention is to provide means whereby minute code markings, nicks or slots can be expeditiously made on the edges of labels, the spacings of the markings from each other and from the first or datum cut forming a code, by which all information relative to the product bearing the labels can be instantly determined by authorized persons having the key to the code; the markings being such that the labels themselves are not defaced or rendered unattractive to the purchasing public.

Another salient object of the invention is to provide a machine for quickly and accurately marking a large number of labels simultaneously with the desired code matter.

A further object of the invention is to provide a machine in which the devices used to cut or mark the edges of the labels can be quickly changed and set to any desired code combination or reading.

A further important object of the invention is the provision of a carriage for receiving and clamping a stack of labels mounted for reciprocatory movement on a frame or bed having upper and lower sets of power driven rotary circular saws or knives, with means for moving the carriage and the labels past the sets of saws or knives, the carriage being so constructed as to permit the sets of saws or knives to act simultaneously on opposite edges of the stack of labels.

A still further object of the invention is to provide means for accurately adjusting the sets of saws or knives relative to the carriage, whereby the depth of the cut of the marks on the labels can be controlled.

A still further object of the invention is to provide a novel mandrel or shaft for the sets of

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knives or saws, whereby the distance between the saws or knives can be quickly changed and whereby the saws or knives can be firmly held in their selected set position during rotation.

With these and other objects in view, the invention consists in the novel construction, arrangement and formation of parts, as will be hereinafter more specifically described and claimed, and illustrated in the accompanying drawings, in which drawings,

Figure 1 is a top plan view of the novel machine for coding labels, parts of the view being shown broken away and in section to illustrate structural detail.

Figure 2 is a longitudinal sectional view through the machine taken on the line 2—2 of Figure 1, looking in the direction of the arrows and illustrating the novel arrangement of the sets of saws or knives relative to the reciprocatory carriage.

Figure 3 is a side elevational view of the machine with parts thereof broken away and in section.

Figure 4 is a transverse sectional view through the machine taken on the line 4—4 of Figure 1 looking in the direction of the arrows illustrating the mounting of the carriage on the frame or bed of the machine.

Figure 5 is a fragmentary transverse sectional view through the machine taken on the line 5—5 of Figure 1, looking in the direction of the arrows illustrating the latch for the carriage and the means employed for clamping a stack of labels on the carriage.

Figure 6 is a transverse sectional view through the machine taken on the line 6—6 of Figure 3, looking in the direction of the arrows and illustrating more particularly the novel arrangement and construction of the mandrels or shafts for adjustably receiving and holding the sets of marking knives or saws.

Figure 7 is a detail sectional view through one set of the coding knives or saws, taken on the line 7—7 of Figure 6, looking in the direction of the arrows, the view being on a larger scale than Figure 6.

Figure 8 is an enlarged fragmentary detail transverse sectional view through the machine, taken on the line 8—8 of Figure 3, looking in the direction of the arrows and illustrating the means for advancing the carriage.

Figure 9 is an enlarged fragmentary detail transverse sectional view through the machine taken on line 9—9 of Figure 3, looking in the direction of the arrows and illustrating more particularly a part of the carriage and frame construction.

Figure 10 is a front elevational view of a label provided with the coding marks.

Figure 11 is an enlarged fragmentary detail

transverse sectional view illustrating how labels of different characters can be associated with the carriage.

Referring to the drawings in detail, wherein similar reference characters designate corresponding parts throughout the several views, the letter C generally indicates the novel coding machine for a stack of labels L.

The coding machine C includes a bed or base 15, which can be in the nature of a casting. As illustrated this bed 15 includes side longitudinally extending walls 16 and 17 and end walls 18 and 19. These walls can be braced in any desired way such as by transversely extending vertically disposed plates 20 and transversely extending, horizontally disposed connecting webs 21. This bed can be bolted or otherwise secured to suitable supporting pedestals 22.

Mounted upon the bed 15 for reciprocatory movement longitudinally of the bed is a carriage 23.

The carriage 23 includes a bottom wall or plate 24 having formed on its longitudinal sides, tracks 25 for a purpose, which will be later set forth. On this carriage is received and clamped the desired stack of labels L to be coded and as the length of the stack or the number of labels in the stack varies, means 26 is provided for adjustably clamping the stack on the carriage, which means will also be later set forth in detail. At this point, it is well to note that the lower wall or plate 24 of the carriage has a longitudinally extending opening 27 so that a part of the lower edge of the stack or labels L can be acted upon during the coding operation.

As stated, the carriage 23 slides on the bed and the upper edges of the side walls 16 and 17 of the bed are provided with rails 28 which are received in the tracks 25 formed on the carriage. The outer faces of the rails 28 are beveled as at 29 and on one side of the carriage the track is provided with a beveled inner face 30 to correspond to the beveled face 29 of the track. On the other side of the bed, the beveled outer face of its rail is engaged by an adjustable gib 31 mounted for movement with the carriage. The adjustable gib 31 is engaged by a series of set screws 32 on the carriage. Fastened to one side of the carriage 23 is a depending longitudinally extending rack bar 33 and this rack bar has meshing therewith a drive and feed pinion 34. The pinion is keyed, or otherwise fastened, to a shaft 35 rotatably mounted in suitable bearings 36 on a bearing bracket 37 bolted or otherwise wastened to one side of the bed 15. The outer end of the shaft 35 has secured thereto a crank wheel 38 and the crank wheel can be provided with a crank handle 39. Obviously by turning the shaft 35, the carriage can be fed back and forth according to the direction of rotation of the shaft.

The carriage 23 is formed in a novel manner to receive the stack of labels L and the adjustable clamping means 26 therefor. Hence the carriage is provided on the inner side of the longitudinally extending opening 27 with a polished set-in label rest strip 40 and on the other side of the opening with a label guide and rest strip 41. This strip 41 is also set into the carriage and is substantially flush with the upper face thereof and includes a set-in depending inner side wall 42 having a perpendicular label guide face 43 and an angularly extending label guide face 44. The extreme lower end of the label guide and rest strip 41 is provided with an inturned longitudinally extending foot 45 on which the lower edges of the labels rest. The upper face of the foot 45 is in the same horizontal plane with the upper face of the strip 40.

The stack of labels L is placed on the carriage with the lower edges resting upon the strip 40 and the foot 45, with one side edge against the inner face of the strip 41, as best shown in dotted lines in Figures 4 and 6. Where labels are of the usual square or oblong character as shown in dotted lines in Figs. 4 and 6 and in full lines in the detail showing in Figure 10, the side edges of the labels engage the perpendiclular face 43. Where the labels are of a special character and have their side edges at an acute angle as is indicated by the reference character 46, the side edges engage the guide face 44 as best shown in Figure 11. The means 26 for adjustably clamping the stack of labels L on the carriage includes an end press pad or plate 47. This press pad 47 carries guide pins 48 slidably mounted in guide openings formed in a transversely extending web 49 formed on the carriage 23 adjacent to the outer end thereof. Expansion springs 50 are coiled about the guide pins 48 and engage the web 49 at their inner ends and against stop washers 51 at their outer ends. These stop washers can be held in place in any suitable way such as by cotter keys 52. Hence the springs 50 function to urge the press pad 47 toward the inner face of the web 49. Also carried by the press pad 47 is a guide and operating shaft 53 which is slidably received in a bearing 54 carried by the carriage. Mounted for turning movement on a pivot pin 55 secured to the carriage is a cam lever 56 and the cam portion of the lever is adapted to engage one end of the shaft 53 and by turning the cam lever the press pad can be forcibly moved into clamping engagement with the stack of labels L against the tension of the springs 50. As the stack of labels may vary in length an adjustable clamp plate 57 is slidably mounted on the carriage for movement toward and away from the web 49. This clamp plate 57 has formed on its terminals, guide-feet 58 carrying wear plates 59 for engaging the inner beveled faces 60 of guide rails or gibs 61 and 62. These guide rails or gibs are secured to the carriage and it is preferred to have the rail 62 adjustable toward and away from the plate 57 to take up wear. By this arrangement the plate 57 can be readily moved toward the web 49 as heretofore intimated and in order to hold the plate 57 in an adjusted position relative to the web 49 the carriage has secured thereto a longitudinally extending ratchet rack bar 63. One foot 58 of the plate 57 carries a pivoted gravity operated dog 64 for engaging the ratchet rack bar 63 and for latching the plate 57 against movement in one direction relative to said web. The plate 57 also carries an adjustable press pad 65 which is similar in character to, or the same as, the press pad 47. The press pad 65 carries guide pins 66 which slidably extend through guide openings in the plate 57. The pins 66 have coiled thereabout expansion springs 67. The springs at one end engage the plate 57 and engage at their opposite ends against stop washers 68. The stop washers can be held in place in any desired way, such as by cotter keys. The press pad 65 also carries the guide and operating shaft 69 which slidably extends through a bearing 70 on the plate 57. The plate 57 also carries a cam lever 71 mounted for turning movement on a pivot pin 72 and the cam end of the lever engages against the shaft 69. By operating

the cam lever, in the correct direction, the cam can press against the shaft for moving the press pad 65 toward the press pad 47. When a stack of labels is to be placed in position, the carriage is moved to the left, as shown in Figure 1 and the dog 64 is lifted, to permit the sliding of the plate 57 and its various adjuncts to the right. The cam levers 56 and 71 are turned so that the springs 50 and 67 will move the press pads 47 and 65 respectively, toward the web 49 and the plate 57. The stack of labels is now placed on the carriage spanning the opening or slot 47 therein and the clamp plate 57 is moved toward the web 49 against the stack. After this initial adjustment, the cam levers 56 and 71 are turned so as to force the press pads 47 and 65 into intimate clamping contact with the ends of the stack. The labels are now firmly clamped in position and are ready to be operated upon when the carriage is reciprocated.

Mounted upon the bed 15, in a novel manner, are novel means 73 and 74 for acting respectively against the upper and lower edges of the labels as the carriage is reciprocated. This means includes gangs or sets of circular saws or knives for cutting notches in the upper and lower edges of the labels and this means will now be described in detail.

The means 73 for acting on the tops of the labels includes a swinging yoke 75 having side arms 76. The forward upper ends of the arms carry bearings for rotatably supporting a hollow cross shaft or mandrel 77, which carries the gang or set of circular knives or saws 78. A guard 79 is rigidly fastened to the arms 76 and connects the arms together for simultaneous movement. This guard 79 is of an arcuate shape in cross section and extends partially over the set of knives or saws 78 to protect the operator of the machine. The lower ends of the arms 76 of the yoke 75 are also provided with bearings and the same are mounted upon a supporting rock shaft 80 mounted on the side walls 17 of the bed of the machine. Formed on, or otherwise secured, to one of the arms 76 is a lever 81 and the outer end of the lever terminates in a yoke 82 which straddles a vertically disposed adjusting screw 83. Mounted on the screw 83 above and below the yoke 82 are adjusting hand wheel nuts 84. By adjusting these nuts up or down on the screw 83 the yoke 75 can be rocked to cause accurate adjustment of the set of saws or knives 78 toward and away from the labels L and the label carriage 23 for regulating the depth of cut.

The means 74 for operating on the lower face of the stack of labels L, is similar in character to the novel means 73 and the means 74 also includes a gang or set of circular knives 78 and a hollow mandrel 77. As the means for holding the set or gang of knives and saws in position are identical, only one will now be described.

Novel means is provided for holding the knives or saws of the sets 78 in proper selected positions relative to one another. Obviously, different numbers of knives or saws can be utilized as needed, and in the present instance there is shown five knives or saws in each set. The peripheries of the circular knives or saws may or may not be provided with teeth. The means for detachably holding the knives or saws of the sets 78 in a selected position consists of an expander member 85 slidably mounted in the hollow mandrel 77. One end of the expander 85 is reduced in diameter and is received in a sleeve guide 86 carried by the adjacent end of the mandrel. The

opposite end of the expander 85 is provided with a threaded bore 87 which receives an adjusting screw 88. The adjusting screw extends out through one end of the mandrel and is rotatably carried by a stop cap 89 threaded into the mandrel. Bearing against the outer face of the cap is a hand wheel 90 carried by the screw for facilitating the rotation thereof. A stop collar 91 is secured to the screw and the inner face of the stop cap bears against this collar. Obviously, by turning the wheel 90 the expander can be slid longitudinally of its mandrel. The expander 85, is provided with longitudinally extending slots 92, at equidistantly spaced points, and preferably at thirds. Communicating with the slots at spaced points are openings 93. Pins 94 extend across each of the slots 92 and are fitted in the openings 93. The mandrel 77 is also provided with longitudinally extending slots 95, which register with the slots 92. Mounted in the slots 92 and 95 are longitudinally extending jaws 96. These jaws are provided with equidistantly spaced teeth 97, and the teeth are spaced apart the thickness of the knives or saws, and these jaws move toward and away from the knives or saws for clamping the same in position. The inner edges of the jaws 96 adjacent to their opposite ends are provided with inclined slots 98 and 99 which receive the pins 94 of the expander. In order to hold the jaws in position on the mandrel against accidental displacement, the same are provided at their opposite ends with lugs 100 and 101. In placing the jaws in position, the lugs 101 are fitted against the inner surface of the mandrel after which a sleeve 102 is slipped on the mandrel over the lugs 100 and held detachably in place by any suitable means, such as a set screw 103.

By turning the screw 90 so as to feed the expander to the left (see Figure 6), the pins 94 engaging the lower inclined walls of the slots 98 and 99 will draw the jaws inwardly into the mandrel, releasing the knives or saws. The knives or saws are now set to their proper coding position, after which the hand wheel 90 is turned in a reverse direction, so as to feed the expander 85 to the right and the pins 94 engaging the upper inclined walls of the slots 98 and 99, of the jaws, will move and hold the jaws in an outward set clamping position for holding the knives against lateral shifting. By providing the arrangement of the slots 98 and 99 and the pins 94 the jaws 96 are positively projected and retracted without any danger of the same tipping or binding.

The mandrel 77 for the lower label notching and cutting means 74 is rotatably mounted in the forward ends of the arms 104 of a swinging yoke 105. The opposite ends of the arms are connected to a cross rock shaft 106 mounted in the side walls 16 and 17 of the bed frame 15. Hence the set of knives or saws 78 of the means 74 is movable toward and away from the lower edges or face of the stack of labels L. A guard 107 partially encircles the set of knives or saws 78 for the means 74 to protect the operator and this guard rigidly connects the arms 104 together. To bring about the accurate adjustment and positioning of the set of knives or saws 78 of the means 74, the guard 107 carries a depending bolt 108. The bolt slidably extends through an externally threaded adjusting sleeve 109 and this sleeve is threaded into the bottom of the bed frame 15. Formed on the adjusting sleeve 109 is a hand wheel 110. By turning this hand wheel the yoke 105, the guard 107 and the

set of knives can be raised. By loosening the adjusting sleeve, the yoke will swing down by gravity. A lock nut 111 is threaded on the bolt 108 for engaging and holding the adjusting sleeve 109 in its desired set position.

If preferred, a motor can be provided for the upper cutting means 73 and the lower cutting means 74. As shown, an electric motor 112 is mounted along side of the frame 15, and the armature shaft 113 of this motor is operatively connected to the mandrel 77 of said upper cutting means 73. This driving means can consist of a pulley 114, secured to the armature 113, a drive belt 115 and a pulley 116 secured to the mandrel.

An electric motor 117 for the lower set of cutting means 74 is also mounted along side of the bed 15 and the armature shaft 118 thereof, is provided with a pulley 119. A pulley belt 120 is trained about the pulley 119 and around a pulley 121 secured to the mandrel 77 of the lower cutting means 74.

In operation of the machine, the desired stack of labels L is clamped to the carriage 23 as heretofore described and the motors 112 and 117 are set in operation. The crank wheel 38 is rotated by the operator in the direction to feed the carriage to the right (see Figures 1 and 2) as the carriage passes between the upper and lower sets of label cutting means 73 and 74, the knives will cut the upper and lower edges of the labels in exact accordance with the spacing of these knives. When the carriage reaches the end of its travel to the right, the operator removes the stack or block of cut labels L and reverses the direction of rotation of the crank wheel and the carriage is returned back to the left. This brings about the smooth notching of the labels and upon the return of the carriage to the left, a new stack or block of labels L can be immediately placed in position.

In order to prevent banging of the carriage during the reciprocation thereof, the opposite ends of the bed 15 can have secured to its end walls 18 and 19 by clamps 122, rubber bumper pads 123. These pads are arranged in the path of travel of stop bumpers 124 secured to the lower face of the carriage.

As shown in Figure 6, the guards for the sets of knives can be provided with graduations 125, to facilitate the setting and spacing of the knives relative to one another.

If preferred, vacuum suction means can be attached to these guards for withdrawing the cuttings from the labels.

Particular attention is now directed to Figure 10, and it will be noted that the upper and lower edges of the labels are provided with notches or the like 126, spaced various distances apart. The first cut or notch at the left of each group of cuts or notches, both top and bottom, constitutes the reference or datum cut, and all other cuts to the right are in reference to it in the code. This is important, and if the corner of the label is marred or broken it will not matter in deciphering the code, providing the datum cut appears. In order to read the data conveyed by the code markings 126, a deciphering card, not shown, is placed along the edge of the label to be read and located relative to the reference or datum cut, and this card is provided with the printed data represented by the other cuts or notches.

Various changes in details may be made without departing from the spirit or the scope of the invention, but what is claimed as new is:

1. A machine for coding labels comprising a bed, a mandrel, a set of disc cutters on said mandrel, a yoke rockably mounted on the bed rotatably supporting the mandrel, means for rotating the mandrel, a carriage slidably mounted on the bed for movement past the cutters, means for clamping a stack of labels on the carriage, and means for swinging the yoke to adjustably position the cutters relative to the stack of labels on the carriage including a screw and a manually operated hand wheel.

2. A machine for coding labels comprising a bed, a mandrel extending transversely across the bed, a set of cutters secured to the mandrel, a swinging yoke mounted on the bed rotatably supporting the cutters, means for driving the mandrel, a carriage mounted for reciprocatory movement on the bed past the cutters, means for clamping a stack of labels to the carriage, means for swinging the yoke to position the cutters relative to the stack of labels including a lever secured to the yoke, a screw secured to the bed, a yoke on the lever embracing the screw, and hand wheel nuts threaded on the screw against the yoke.

3. A machine for coding labels comprising a bed, upper and lower mandrels, swinging yokes carried by the bed rotatably supporting the mandrels, means for driving the mandrels, a carriage reciprocally mounted on the bed between the mandrels, a set of disc cutters carried by each mandrel, means for clamping a stack of labels to the carriage, said carriage having a longitudinally extending slot to permit the passage of the lower cutters through the lower face of the stack of labels, and means for independently adjusting the yokes.

4. In a label coding machine, a bed, upper and lower mandrels on said bed, a set of cutters carried by each mandrel, means for rotating the mandrels, a carriage for labels slidably mounted on the bed between said cutters, said carriage having a longitudinally extending opening for permitting the passage of the lower set of cutters in said carriage for engaging the lower face of the stack of labels, label guides on each side of the opening, one of said guides including a longitudinally extending wall terminating in a horizontal foot, the foot engaging the lower face of the stack, and said wall having a perpendicular face for engaging the edges of square and oblong labels and an angularly extending face for engaging labels having inclined edges.

HAROLD E. RUE.
LOUIS TIGERMAN.

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