May 3, 1966 B. W. BOCK ETAL 3,249,269

RIBBON-BOW FORMING APPARATUS

Filed Oct. 14, 1964 3 Sheets-Sheet 1

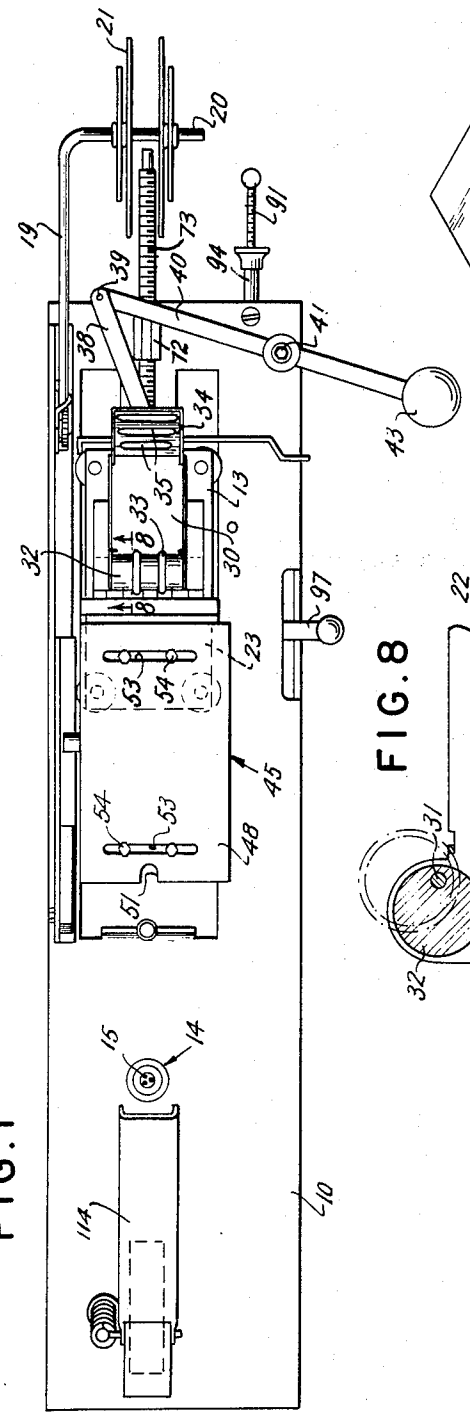


FIG. 1

FIG. 8

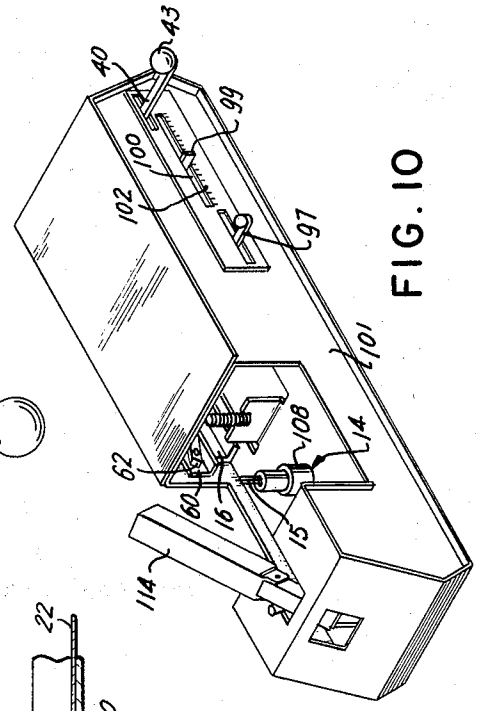


FIG. 10

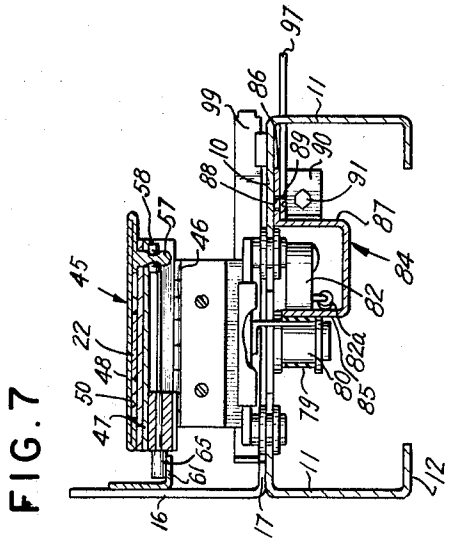


FIG. 7

INVENTORS
BERT W. BOCK
MARTIN GOLOMBEK

BY

Victor M. Helfand
ATTORNEY

May 3, 1966 B. W. BOCK ETAL 3,249,269

RIBBON-BOW FORMING APPARATUS

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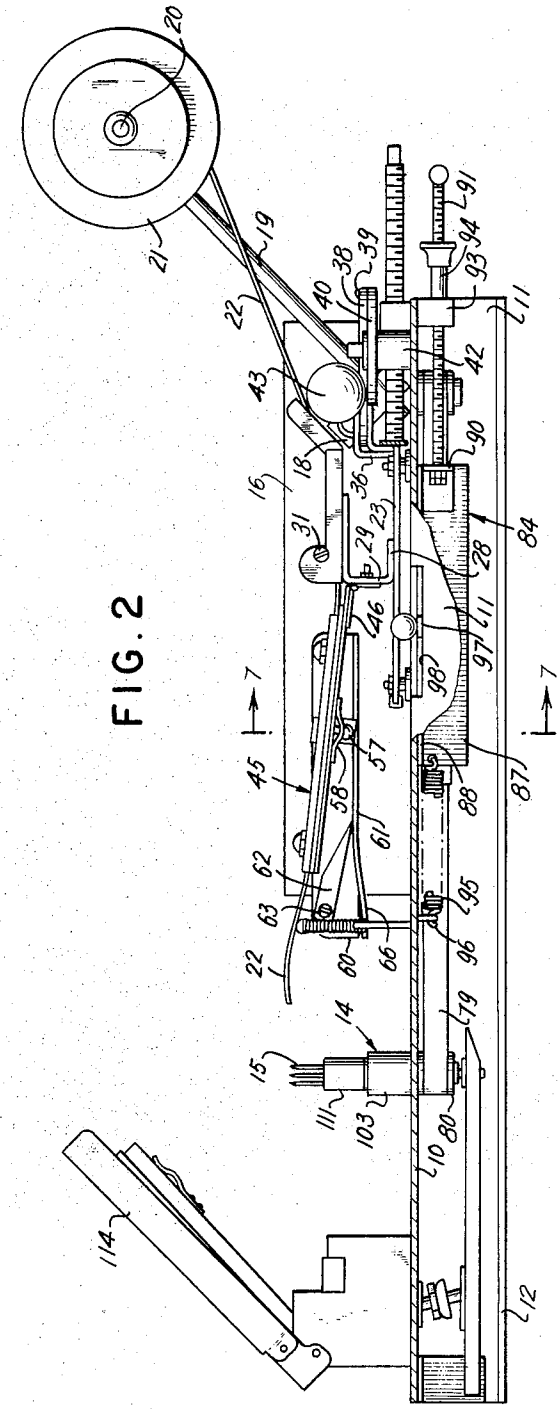


FIG. 2

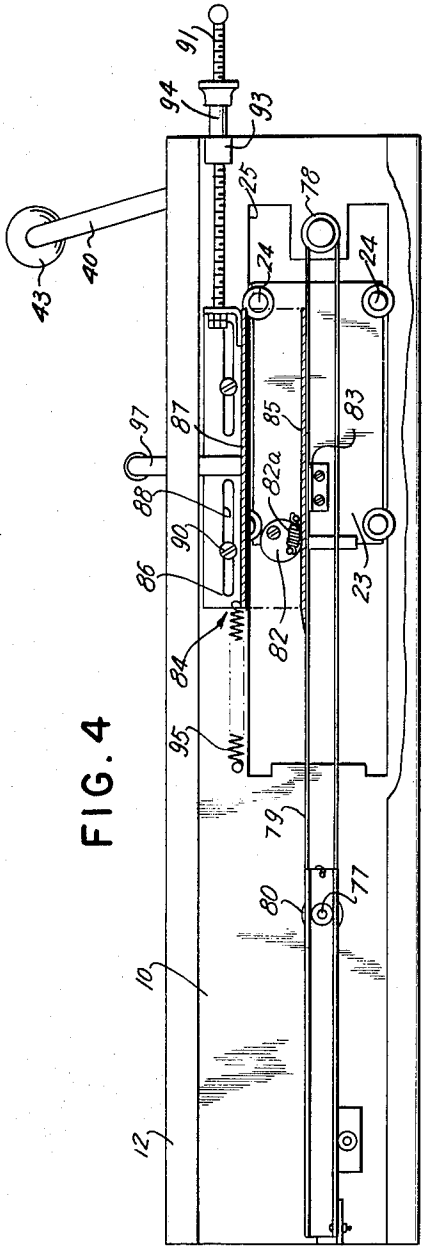


FIG. 4

INVENTORS
BERT W. BOCK
MARTIN GOLOMBEK

BY

ATTORNEY

May 3, 1966 B. W. BOCK ETAL 3,249,269

RIBBON-BOW FORMING APPARATUS

Filed Oct. 14, 1964 3 Sheets-Sheet 3

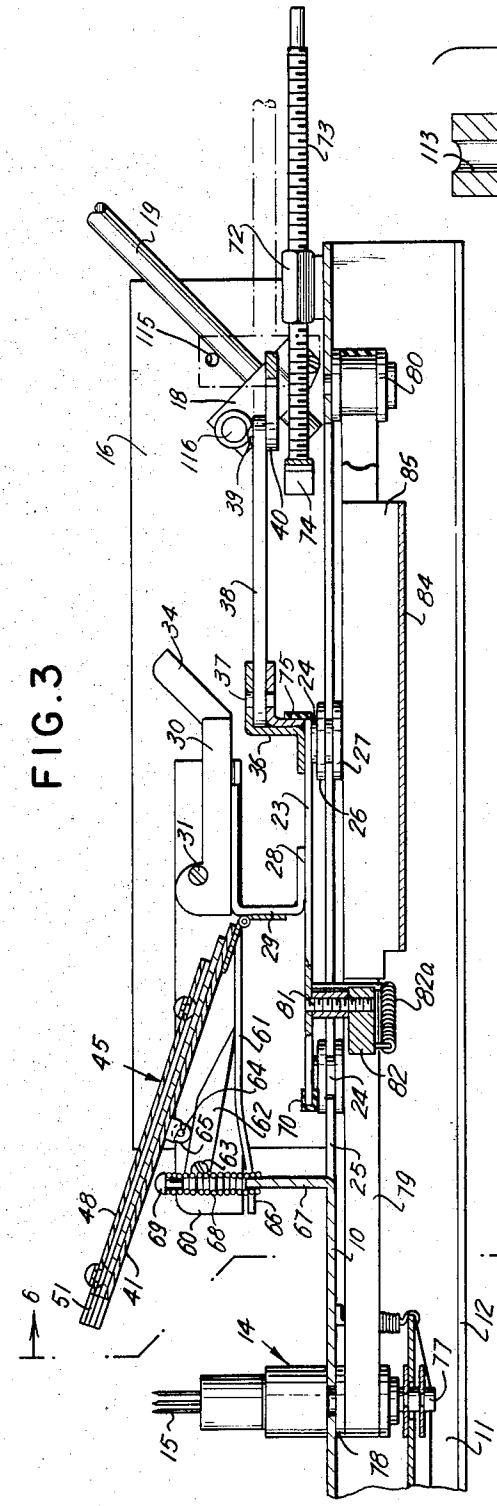


FIG. 3

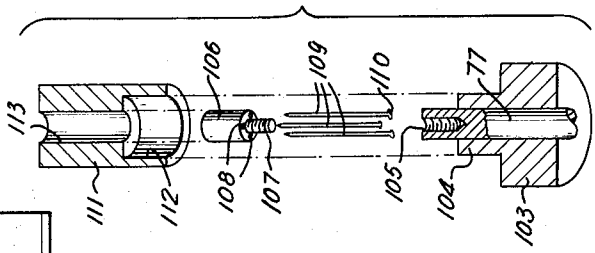


FIG. 9

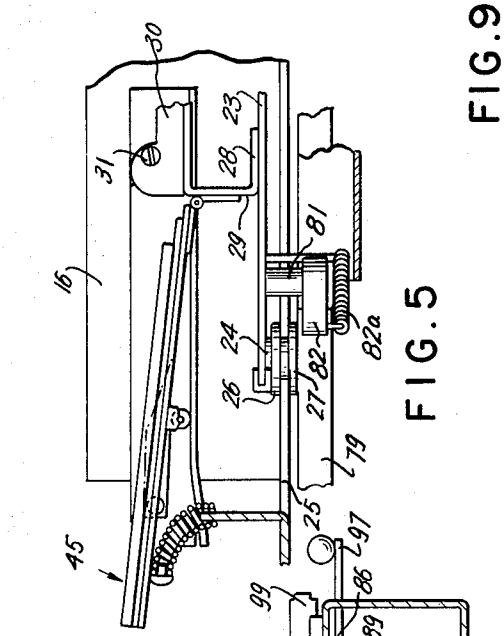


FIG. 5

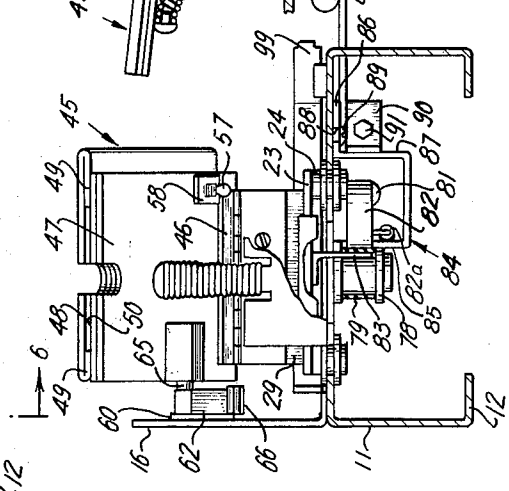


FIG. 6

INVENTORS
BERT W. BOCK
MARTIN GOLOMBEK

BY

ATTORNEY

United States Patent Office 3,249,269 Patented May 3, 1966

3,249,269

RIBBON-BOW FORMING APPARATUS

Bert W. Bock, 53 Sanford Road, Fair Lawn, N.J., and Martin Golombek, 187 Clinton St., Hackensack, N.J.

Filed Oct. 14, 1964, Ser. No. 403,951
11 Claims. (Cl. 223—46)

The present invention relates to apparatus for producing multiple-loop or "star" type ribbon bows, such as are formed from a continuous ribbon strip; of the type that are currently in vogue for the decoration of gift packages, particularly adapted for both manual and automatic operation.

Manually operated apparatus for making multiple-loop ribbon bows, of the character described, has heretofore been known and used; an example is the apparatus disclosed in U.S. Patent No. 2,933,223. And it is the general object of the present invention to provide apparatus, of the character described, that possesses improved characteristics and advantages over the prior art apparatus as in the following respects.

It is an object of the present invention to provide apparatus of the character described which may accept and efficiently operate with ribbons of various types and characteristics; including certain types of ribbons that have been found unsuitable for use with the apparatus of the prior art.

It is another object of the present invention to provide apparatus, of the character described, having improved means for rotating the ribbon impaling member of the apparatus through full 360°, to thereby make possible the formation of a complete center loop on a ribbon bow.

It is also an object of the present invention to provide apparatus, of the character described, having improved and more flexibly adjustable means for moving a ribbon into impaling position at a more finely adjustable predetermined angle to a preceding loop to thereby readily, easily and accurately vary the number of loops which a star bow may be formed.

It is still another object of the present invention to provide apparatus, of the character described, having readily-adjustable means for accurately predetermining the length of the loops and, consequently, the diameter of the ribbon bows formed on the apparatus.

It is yet another object of the present invention to provide apparatus, of the character described, having improved means for more easily and conveniently threading and guiding the loop-forming ribbon to the ribbon-impaling means of the apparatus.

It is a further object of the present invention to provide means inhibiting the sagging of the ribbon on its path to the impaling means, to thereby prevent missed loops in the formation of the bow.

It is still a further object of the present invention to provide apparatus, of the character described, having ribbon-impaling means whose impaling pins may be readily replaced when damaged or broken.

It is yet a further object of the present invention to provide apparatus, of the character described, which is of relatively simple and compact construction and easily handled for moving or transporting from place to place; which is strong and sturdy and will require a minimum of maintenance and care; and which is easily and convenient to operate.

The foregoing and other objects and advantages of the apparatus of the present invention will become more readily apparent to those skilled in the art from the embodiment thereof shown in the accompanying drawings and from the description following. It is to be understood, however, that such embodiment is shown by way of illustration only, to make the principles and practice of the invention more comprehensible, and without

any intent of limiting the invention to the specific details therein shown.

In the drawings:

FIG. 1 is a top plan view of one embodiment of the apparatus of the present invention;

FIG. 2 is a side elevational and partly sectional view, of the apparatus, with the ribbon-moving carriage in retracted position;

FIG. 3 is a vertical, sectional view, on an enlarged scale, through the apparatus, showing the ribbon-moving carriage in ribbon-moving position but short of impaling the ribbon;

FIG. 4 is a bottom plan view of the apparatus;

FIG. 5 is a fragmentary view of the apparatus after impaling of the ribbon and in partly retracted position;

FIG. 6 is a sectional view taken on line 6—6 of FIG. 3;

FIG. 7 is a sectional view taken on line 7—7 of FIG. 2;

FIG. 8 is a sectional view taken on line 8—8 of FIG. 1;

FIG. 9 is an exploded view of the impaling post of the invention; and

FIG. 10 is an isometric view of the apparatus of the invention shown as enclosed in a casing.

Referring now in greater detail to the embodiment of the invention illustrated in the drawings, the same is shown to comprise a base, including an elongated table **10**, held in elevated relation to a supporting surface by depending side walls **11**, which may be formed with offset ends **12**, that may preferably face one another. At one end of the table **10** there is rotatably supported, in upright position, an impaling post structure, generally designated as **14**, including a plurality of upwardly projecting impaling pins **15**. Mounted on the table **10**, along its longitudinal edge remote from the operator, is an upright wall **16**, which may be secured to the table by its laterally offset edge **17**. The wall **16** supports, as by the plate **18**, in diagonally, rearwardly, upwardly extending position, a rod **19**, having an offset end **20**, on which may be rotatably supported a spool **21**, for a continuous roll of ribbon **22**.

Mounted on table **10** intermediate posts **14** and **19** is a structure for advancing ribbon from the spool **21** toward impaling pins **15**. Such structure may comprise a ribbon-advancing carriage mounted on the table **10** for reciprocable movement thereon. Such carriage may consist of a preferably rectangular plate **23**, having a dependent stud **24**, at approximately each corner thereof, which studs extend into an opening **25**, having parallel longitudinal edges, formed in the table **10**. Each stud **24** is disposed adjacent one of the longitudinal edges of the opening **25** and carries a bearing which is provided with an upper flange **26**, engaging over the top surface of the marginal edge portion of the adjacent longitudinal edge of the opening **25**, and a bottom flange **27**, engaging under such marginal edge portion, to thereby retain the carriage in reciprocable position on the table **10**. Preferably, such bearings and flanges may be formed of a material exerting a minimum of friction, as nylon, or the like.

The carriage plate **23** may carry means for engaging and advancing a ribbon uni-directionally from the spool **21** toward the impaling pins **15**. Such means may comprise a U-shaped bracket **28**, secured by one side to the plate **23** with its connecting side or web **29**, facing the impaling post **14**. The other side of the bracket **28** supports a channel-shaped ribbon guideway **30**, of rectangular cross-section whose side walls may support between them at their forward end, a pin **31**, on which is rotatably eccentrically, supported a relatively thick, heavy roller **32**, in position to have its thicker portion extend forwardly of the pin **31**, in the direction of the impaling post **14**, and rest on the bottom of the channel guideway **30**. The roller **32** may be provided with spaced friction ring **33**,

intermediate its end, which may be formed of rubber or the like.

It will be readily seen that the roller **32** will slide over a ribbon impaled on pin **15** to permit the rearward movement of the carriage without disturbing such ribbon; but will frictionally engage such ribbon upon forward movement of the carriage to thereby unroll it from the spool **21** to move it in the direction of the impaling post **14**.

A plate **34**, may be supported between the side of the guideway **30** at its rear end in diagonally upwardly and rearwardly extending position; such plate **34** having formed therein ribbon threading slots of different lengths; each adapted to accommodate a ribbon of different width.

The carriage may be manually reciprocated on the table **10** toward and away from the impaling post **14**, by means of an upright bracket **36**, secured on the rear end of the carriage plate **23**, to which is pivotally connected, as at **37**, one end of a horizontally disposed link **38**, whose other end is pivotally connected, as at **39**, to one end of a lever **40**, that is pivotally supported in horizontal position, intermediate its ends, as at **41**, on a post **42**, mounted on table **10** adjacent its rear edge; with the free end of the lever **40** over-hanging the near edge of the table **10**, adjacent the rear edge thereof and preferably provided with a knob **43**.

Means are provided on the apparatus for guiding a ribbon **22** advanced by the carriage to impaling position. Such means comprises a ribbon guide, generally designated as **45**, hingedly secured by one end; to one wing of a hinge **46**, whose other wing is secured to the forward face of the upright side **29** of the bracket **28** of the carriage plate **23**. The ribbon guide **45** may comprise a bottom plate **47**, which is secured to the hinge **46**, and may be of double ply of sheet material, as sheet metal, and a top plate **48**, coextensive in size with bottom plate **47** and preferably hinged to the latter by its far longitudinal edge. The top plate **48** may be provided with spaced elements **49**, along its longitudinal edges which define between them the ribbon guideway **50**. Preferably the spacing elements **49** may be integral with the top plate and comprise inwardly turned marginal edge portions of the top plate **48**.

It will be clear that a ribbon may be readily and easily disposed in the guideway **50** by the lifting of the top plate **48**, placing the ribbon on the plate **47** and lowering the plate **48**. It will also be clear that the ribbon will move freely and easily through the guideway **50**, without buckling or twisting.

The plates **47** and **48** of ribbon guide **45** are provided with inwardly extending recesses **51**, in their lead edges to permit the lead end of the ribbon guide to straddle the impaling post **14** and impaling pins **15**, when in forwardmost position, to impale the portion of the ribbon disposed within the recess **51** upon the impaling pins **15**. Means may be provided for adjusting the width of the guideway to the width of the ribbon passing therethrough to further confine the ribbon and limit its path. Such means may comprise one or more as two spaced transverse slots **53**, formed in plate **48**, in each of which a pair of pins **54**, may be slidably disposed, each having an enlarged inner extension **55**, adapted to form a limiting surface for the ribbon moving through the guideway, and a manipulating head **56**, on the exterior.

The plates **47** and **48** may be provided with cooperating means for releasably interlocking them in contacting position, such as the detent pin **57**, projecting from the underside of plate **48**, the registering opening in plate **47**, and the detent snap element **58**, on the other side of plate **47** around such opening engageable over the pin **57**.

Means are provided for supporting the free end of the ribbon guide **45** in its reciprocal movement towards and away from the impaling post **14** and to raise its forward end above post **14** and impaling pins **15**, as it approaches the latter, and for dropping such forward end of the ribbon guide on to the impaling post **14** with pins **15** extending into the recess **51**, as the ribbon guide **45** reaches its extreme forward position. Such means may comprise an angle bar **60**, secured to the rear wall **16** in elevated relation to the table **10** with its horizontal leg **61**, overlying the table **10**. A cam or ramp bar **62**, is pivoted on the upright side of the angle bar **60** by one end, as at **63**, in elevated relation to the leg **61** of the angle bar. The rear portion of the cam bar **62**, tapers towards its rear end. The ribbon guide **45** has secured to its underside a pin **64**, on which is mounted a roller **65**, in position to ride up on the cam **62** as the ribbon guide **45** is advanced. The roller **65** reaches the forward end of the cam bar **62** as the forward end of the ribbon guide reaches the forwardmost position and is disposed with its recess **51** overlying the impaling post **14**. When the ribbon guide **45** reaches its forwardmost position, the roller **65** overrides the cam bar **62** and drops down to the leg **61** of the angle bar **60**, thereby forcing the section of the ribbon **22** disposed in recess **51** on to the impaling pins **15**. On the retracting movement of the carriage, and ribbon guide **45** the roller **65** will ride on the leg **61** of the angle bar **60** and will readily pass under the inner end of the cam **62**. In order to cushion the fall of the forward end of the ribbon guide **45** at its forwardmost position, the forward end of the leg **61** of the angle bar **60** may be severed from the upright leg thereof, as at **66** to form a resilient support for the dropping roller **65**.

The apparatus of the invention may be provided with means for supporting the position of the ribbon between impaling pins **15** and the forward edge of the ribbon guide **45** when the latter is in fully retracted position, to prevent the buckling of such ribbon section with the possibility of a missed loop. Such means may comprise an upright lug or post **67**, preferably struckout from the table **10**, on which is mounted, by one end, a relatively soft coil spring **68**, the upper end of which reaches substantially the height of the impaling pins **15** and hold the rounded head **69**. It will be clear that the head **69** will support the ribbon section disposed between the impaling pins **15** and the forwardmost ends of the retracted ribbon guide **45**. It will also be apparent that the forward movement of the ribbon guide **45** will not be impeded by such spring **68**, as the latter will be readily bent by the forward edge of the ribbon guide in its advance towards the impaling post and will not interfere with such advance (FIG. 5). It may here be stated that the lug **67** may serve as a stop for the forward movement of the carriage for which purpose the forward edge of the plate **23** of the carriage may be provided with a resilient buffer element **70**.

Means are provided on the apparatus for adjustably limiting the length of the carriage stroke, thereby controlling the length of the ribbon rolled from the spool **21** on each forward stroke of the carriage, and thus regulating the size of the ribbon loops formed and the diameter of the resulting ribbon bow. Such stroke limiting means may comprise an internally threaded sleeve **72**, mounted on the table **10** at its rear end, with its axis extending longitudinally of the table, and a threaded rod **73**, adjustably, rotatably held within the sleeve **72**, with its forward end projecting from the sleeve **72**, provided with a head **74**, that may be engaged against the rear end of the ribbon carriage, as by a resilient buffer strip **75**, which may be secured to the rear face of the upright post **36**, mounted on the plate **23**. It will be readily apparent that the forwardly projecting end of the threaded rod **73** may be lengthened or shortened by the turning of the rod to limit the rearward stroke of the carriage to make it shorter or longer as desired.

Means are also provided on the apparatus for rotating the impaling post **14**, uni-directionally and adjustably, a predetermined angular distance upon each forward stroke of the carriage, without moving the pin on the rearward stroke of the carriage. To that end, the impaling post **14** may be formed with a cylindrical core **77**, which is journaled for rotation intermediate its end on table **10**, in any desired manner, with one end thereof projecting below the table **10** and carrying the pulley wheel **78**, which

is operatively connected, as by the belt **79**, to an idle pulley wheel **80**, rotatably supported on the underside of the table **10**, at its rear end. The pulley wheel **78** is supported on the core **77** for unidirectional rotation by means of an interposed one-way clutch or ratchet and pawl, in a manner well known to any skilled mechanic and not thought necessary to be specifically illustrated.

In order to rotate the impaling post **14** upon movement of the carriage to ribbon impaling position, the ribbon carriage plate **23**, may be provided at its forward end with a dependent post **81**, that projects through the guide slot **25** closest to the operating side of the machine and carries on its projecting end a pawl **82**, to engage resiliently against the adjacent section of the belt **79**. A backing plate **83**, may be dependently supported from the carriage **23** in parallel relation and close proximity to the section of the belt **79** engageable by the pawl so as to support said belt section resistently against the pressure of the pawl that engages against it. In the embodiment of the invention illustrated in the drawings, the pawl is in the form of a disc, preferably having a roughened peripheral surface which is mounted eccentrically on the projecting end of the pin **81** with its largest section facing in the direction of the impaling post **14**.

The disc pawl **82** is tensed against the belt **79** which may be likewise formed with a roughened surface for improved frictional engagement by the disc, by means of a spring **82***a*, one end of which is secured to the underside of the pawl **82** at its forward end, and the other end of which is anchored on the underside of the table **10**, as to a pin dependent therefrom in position to pull the pawl against the belt **79**. It may be here stated that instead of the pulley wheels **78** and **80** and the disc pawl **82**, sprocket wheels and a sprocket chain may be used with a conventional type of pawl that engages within the links of the sprocket chain, may be used for the same purpose.

It will be clear that, as the ribbon carriage is moved forwardly toward the impaling post **14**, the disc pawl **82** will grip firmly against the belt **79** to move it along with the ribbon carriage and thereby rotate the impaling post **14**, and that on the return movement of the carriage and the pawl, the impaling post will not turn due to its unidirectional rotational mounting and the belt **79** will readily slip between the pawl **82** and backing plate **83** to permit the carriage to be rearwardly moved with facility.

Means may be provided for adjustably limiting the rotation of the impaling post **14** upon the forward movement of the ribbon carriage. Such means may be in the form of mechanism that will vary the distance between the point of initial contact between pawl and belt from the impaling post **14** on the forward movement of the carriage. This may be effected by masking a variable portion of the belt **79** against contact with the pawl on the forward movement of the latter, as by means of a masking plate supported in slidably adjustable position closely adjacent to the outer surface of the belt **79** and movable along such surface to inhibit contact between the pawl **82** and the belt **79** during an initial portion of the forward movement of the carriage.

In the illustrated embodiment of the invention, the belt masking means comprise a channel member, generally designated as **84**, having spaced sides **85** and **87**, one of which, as **87**, is formed with a laterally and outwardly offset flange **86**, which is provided with spaced longitudinally aligned slots **88**, by which the channel member **84** is slidably supported on the underside of table **10** by the spaced headed pins **89**, projecting from the underside of table **10**, whose heads engage the marginal edge portions of the slots **88**. The channel member **84** is so formed and arranged that its other side **85**, is disposed closely adjacent and parallel to the belt **79**, with the pawl **82** receivable between sides **85** and **87**, so that side **85** is interposable between the cam pawl **82** and the belt **79**, to mask the belt against contact by the pawl.

The channel member side **87** may be formed with a struckout lug **90**, which is offset in the direction of the near edge of the table to extend transversely thereof. The leg **90** is provided with an opening through which one end of a threaded rod **91**, may be slidably inserted and retained by nuts **92**. The rod **91** is also supported slidably longitudinally of the table **10** in a block **93** supported on the underside of the table **10** at its rear end. The rod **91** carries on the portion thereof projecting from block **93** a threaded sleeve **94**. The masking channel **85** is forwardly tensed by a contraction spring **95**, one end of which is secured to the forward end of the channel member **85** and its other end anchored to the underside of the table **10**, in a forward position as at **96**.

It will be readily apparent that by turning the sleeve **94**, in one direction or the other, the masking channel **85** may be moved forwardly or rearwardly to move the point of contact between pawl and belt closer to or further from the impaling post, to thereby rotate the impaling post **14** through a lesser or greater angle.

An arm **97**, may be connected to the channel member **85** and extend outwardly at right angles thereto, to project from the slot **98**, formed in a leg **11**, for manual engagement for moving the channel member **85** the maximum distance during the formation of the initial loop, so as to turn the impaling post a full 360° so as to make a complete center loop for the bow or rosette to be formed. Thereafter, upon the release of the arm **97**, the masking member will return to adjusted position so that all successive rotations of the impaling post will be at a predetermined, preset angle, to form bows with a predetermined number of loops.

The channel member **85** may be provided with a pointer **99**, that likewise extends through a slot formed in the near wall **11** of the apparatus, and also through a slot **100**, formed in a casing **101**, that may be fitted around the entire apparatus. One marginal edge portion of the slot **100** may have a gauge **102**, extending along one edge thereof, for aiding in the setting of the preadjusted angle for rotation of the impaling post **14**.

The impaling post of the present invention may be constituted in a manner to permit the ready and easy replacement of any of the impaling pins **15** in the event that such pin become unfit for use, as by being bent or twisted out of shape or dulled. For that purpose, the portion of the core **77** projecting above table **10** may have a relatively thick sleeve **103**, fitted over its lower portion, said sleeve having an upper portion **104**, of reduced thickness, that terminates short of the upper end of the core **77**, and such end of the core **77** may have a longitudinally-extending threaded recess **105**, formed therein, opening into its top end. A cylindrical plug **106**, of substantially the same diameter as the core **77** and provided with a reduced threaded end **107**, is engageable by such threaded end within the recess **105**. The plug **106** is provided with spaced longitudinal passages or openings **108**, extending along its periphery from around its reduced end **107** to the other end thereof, each of which is adapted to receive therethrough a pin **109**, having a head **110**. It will readily be clear that when the pins are inserted into the openings **108**, with their heads on the inner end of the plug, around the reduced end thereof, and the plug threaded into the recess **105**, the pins will be securely held in place, with their impaling ends projecting above the plug. It will also be apparent that to replace a pin it will be necessary only to unscrew the plug **106**, remove the spoiled pin **109**, substitute another pin in its place, and screw the plug back into place; the only replaceable and destructible part being the pin. A complementary sleeve portion **111**, may be provided, such sleeve portion having an enlarged bore section **112**, adapted to fit over the reduced end **104** of the sleeve **103** and a reduced bore section **113**, adapted to fit over the projecting end of the core **77** and the plug **106**. The upper surface of the sleeve **111** may serve as an anvil

for staples supplied from a stapler **114**, mounted on the table **10** in position to supply staples to such top surface. The stapler may operate a retracting mechanism that retracts the core **77** downwardly to move the impaling pins **15** inwardly to the sleeve **111** and withdraw them from the bow loops to permit their replacement by a staple which will hold the loops permanently together. As this feature of the apparatus does not constitute part of the present invention, it is not thought necessary to describe the details thereof.

If desired, plate **18**, which supports the spool arm **19**, may be pivotally secured at its lower end and may have its upper end optionally securable, to maintain the plate **18** in diagonal position, so as to support the arm **19** in diagonal position extending upwardly from the apparatus, and to maintain the plate in upright position, so that the arm **19** may be horizontally disposed and moved inwardly, for compactness when out of use or during transport. To that end, the wall **16** may be provided with a pair of suitably spaced and positioned openings **115** (FIG. 3 of the drawings), selectively engageable by the threaded and knobbed pin **116**, passing through the upper end of plate **18**.

This completes the description of the ribbon bow or rosette-forming apparatus of the invention. It will be readily apparent that such apparatus, while of relatively simple construction, economical to produce and simple and easy to operate, is capable of producing ribbon bows or rosettes having a completely filled center and of substantially numerous variations in the number and size of the loops. It will also be apparent that the apparatus of the invention may be readily, simply and conveniently adjusted to effect such variations in number and size of loops. It will likewise be apparent that the apparatus of the present invention is of relatively light weight and compact, and easy and convenient to store and to carry. It will be additionally apparent that, while the apparatus of the invention has been shown as being manually operable, it is capable of being readily converted for mechanical operation.

It will be further apparent that numerous modifications and variations may be made in the ribbon bow-forming apparatus of the invention, by anyone skilled in the art, in accordance with the principles of the invention hereinabove set forth, without the exercise of any inventive ingenuity. I desire, therefore, to be protected for any and all such variations and modifications that may be made within the spirit of the invention and scope of the claims hereto appended.

What I claim is:

1. Apparatus for forming multiple-loop ribbon bows, of the character described, comprising a table, a post having ribbon-impaling means at one end supported for unidirectional rotation on said table, a ribbon-moving carriage movably supported on said table, cooperating means on said table and said carriage for guiding said carriage for reciprocal movement toward and away from said post, a wheel mounted on said post, an idling wheel mounted on said table, means interconnecting said wheels for simultaneous rotation, means connected to said carriage engaging said wheel interconnecting means upon movement of said carriage towards said post to thereby rotate said post, and adjustable means blocking said carriage-connected means from engaging said wheel interconnecting means during a variable part of the stroke of said carriage towards said post.

2. The apparatus of claim **1**, wherein said means interconnecting said wheels comprises an endless strip, and wherein said means associated with said carriage for engaging said endless strip comprises a pawl pivotally supported on said carriage for movement toward and away from said endless strip and spring tensioning means normally maintaining said pawl in strip-engaging position.

3. The apparatus of claim **2**, wherein said wheel-connecting means comprises an endless belt and said pawl comprises a disc eccentrically pivoted adjacent said belt with said larger portion of said disc directed towards said impaling post, and spring means are provided normally urging said larger portion of said disc against said belt,

4. The apparatus of claim **1**, wherein the blocking means comprises a masking plate slidably supported on said table and movable for an adjustable distance between said wheel connecting means and said wheel connecting means engaging means to mask a variable portion of said wheel-connecting means against engagement by said connecting means engaging means.

5. The apparatus of claim **1**, wherein said blocking means comprises a masking plate slidably supported on said table intermediate said wheel-connecting means and said connecting means engaging means, and wherein said masking plate is resiliently tensioned for masking a maximum portion of said connecting means from said connecting means engaging means, and manual means are provided on said masking plate for adjustably moving the same to interpose it along lesser distances between said connecting means and said connecting means engaging means.

6. The apparatus of claim **1**, wherein said blocking means comprises a masking plate slidably supported on said table and movable for an adjustable distance to mask a variable portion of said wheel-connecting means against engagement by said connecting means engaging means, and means are connected to said masking plate for variably adjusting the position thereof.

7. The apparatus of claim **1**, including ribbon-guide means connected to said carriage, said ribbon-guide means comprising a first plate hingedly connected by one end to said carriage on the side thereof facing said impaling post, and a second plate hingedly connected by one longitudinal edge to a longitudinal edge of said first plate, and means between the longitudinal edges of said plates spacing said plates from one another and defining a ribbon guideway between them.

8. The apparatus of claim **7**, wherein means are provided on said plates for releasably interlocking said plates in juxtaposed position.

9. The apparatus of claim **1**, wherein said impaling post includes a cylindrical core rotatably supported on said table and projecting above and below said table, the portion of the core projecting above said table having an axially-extending threaded recess formed in the end portion thereof, and a plug of a diameter corresponding to the diameter of said projecting portion of said core, said plug having a threaded reduced end engageable in said recess and a plurality of axially-extending, pin-receiving passageways formed in said plug, said passageways having their openings disposed around said reduced threaded portion.

10. The apparatus of claim **1**, wherein said carriage includes a ribbon-supporting surface and means are provided on said carriage engaging a ribbon supported on said surface to inhibit the sliding movement of said ribbon on said surface on the movement of the carriage toward said impaling post.

11. The apparatus of claim **10**, wherein said means engaging said ribbon comprises a roller eccentrically axially pivotally supported on said carriage transversely of said ribbon with the heavier portion of said roller extending in the direction of said post.

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JORDAN FRANKLIN, *Primary Examiner.*

G. V. LARKIN, *Assistant Examiner.*