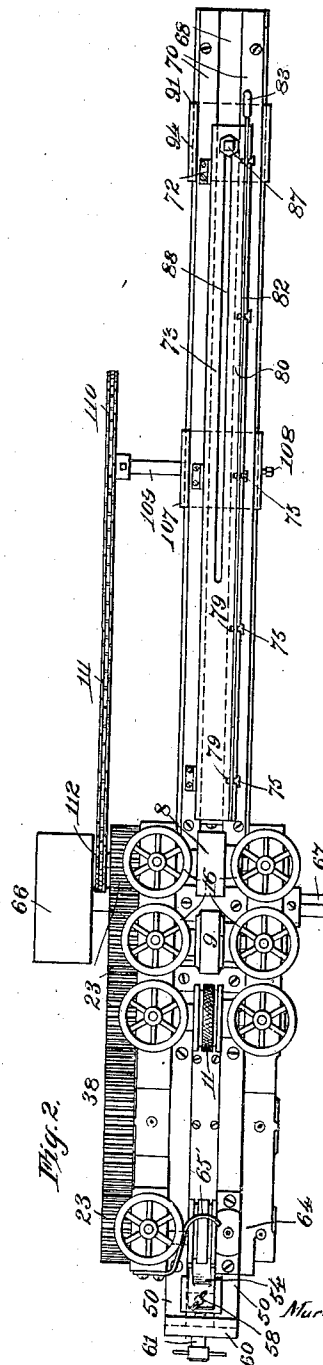
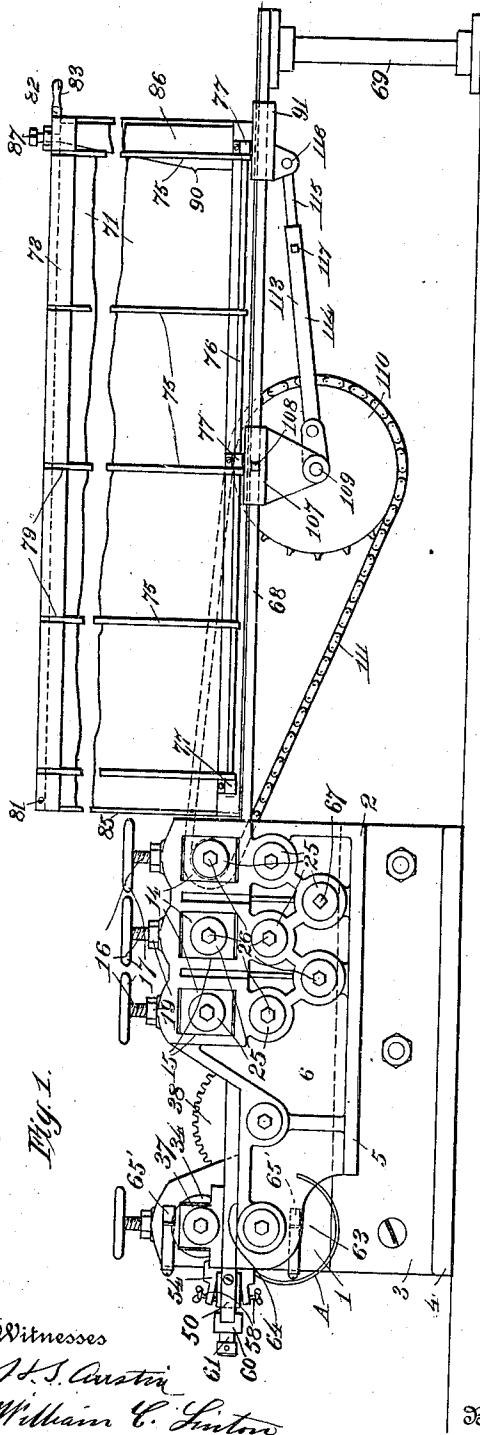


M. L. KEAGY.
HOOP MAKING MACHINE.
APPLICATION FILED DEC. 16, 1910.

995,604.

Patented June 20, 1911.

4 SHEETS—SHEET 1.



John R. H. P. H.
Attorney

995,604.

M. L. KEAGY.
HOOP MAKING MACHINE.
APPLICATION FILED DEC. 16, 1910.

Patented June 20, 1911.

4 SHEETS—SHEET 2.

Fig. 3.

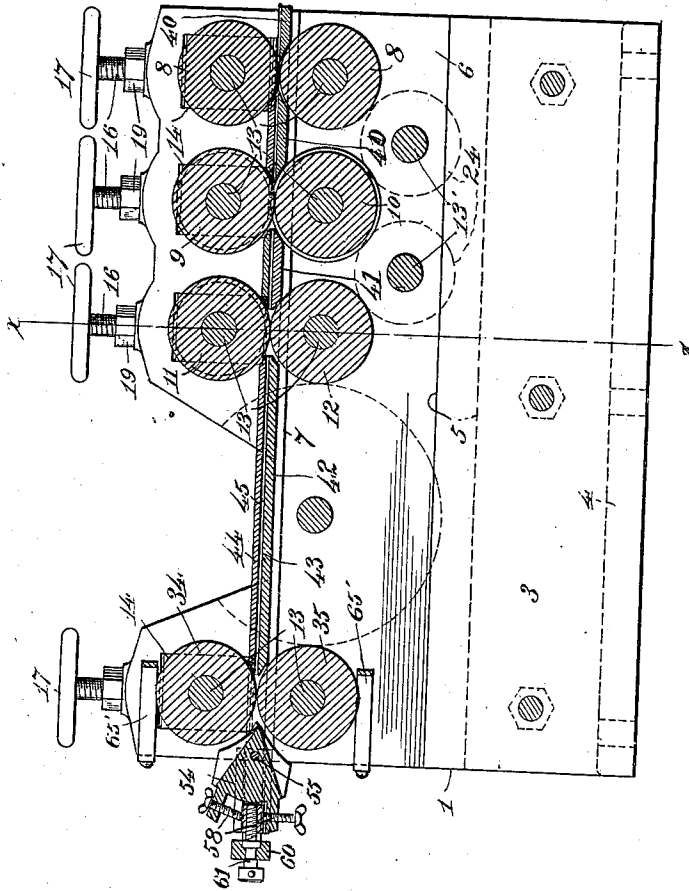
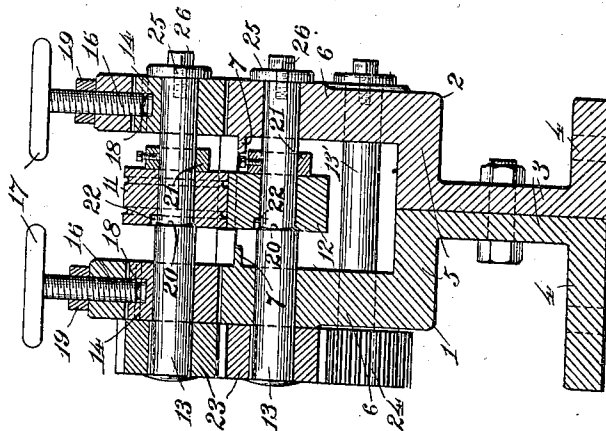


Fig. 4.



Witnesses

H. S. Austin

William C. Linton

Inventor

Martin L. Keagy

By

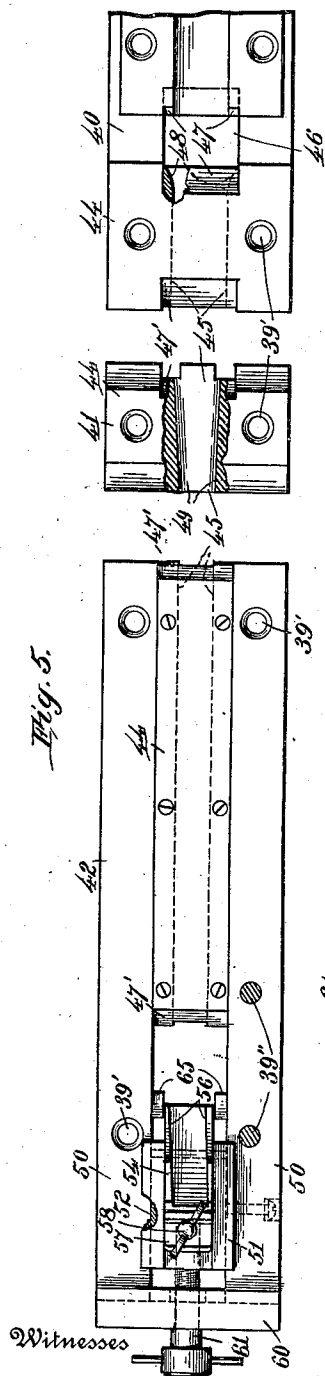
John A. P. Poth

Attorney

995,604.

M. L. KEAGY.
HOOP MAKING MACHINE.
APPLICATION FILED DEC. 16, 1910.

Patented June 20, 1911.
4 SHEETS—SHEET 3.



Witnesses
H. S. Austin
William C. Linton.

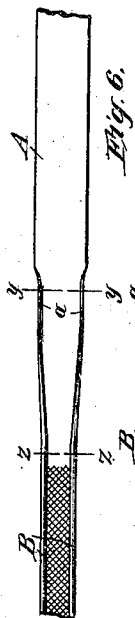


Fig. 6.



Fig. 7.



Fig. 8.

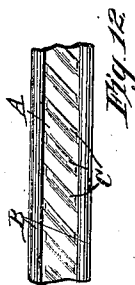


Fig. 12.

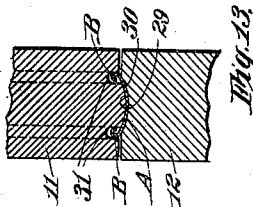


Fig. 13.

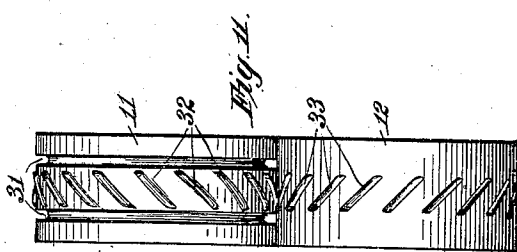


Fig. 11.

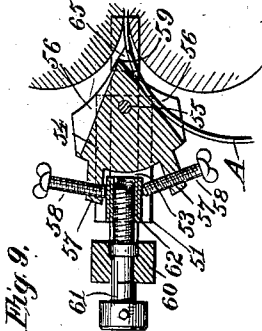


Fig. 9.

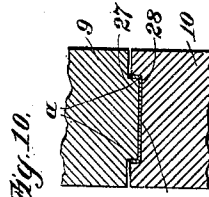


Fig. 10.

Inventor

Martin L. Keagy

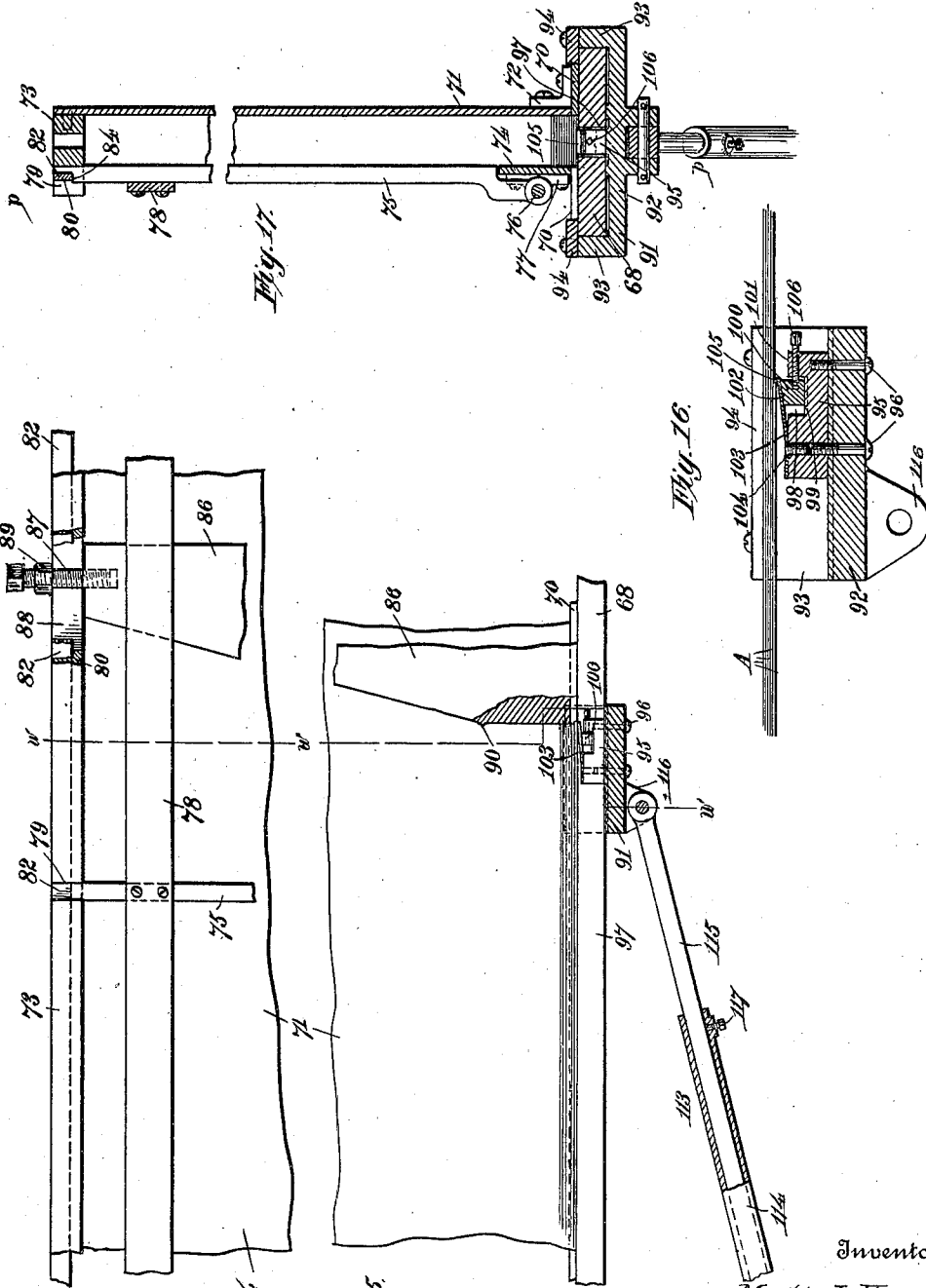
Joshua R. H. H.
Attorney

M. L. KEAGY.
HOOP MAKING MACHINE.
APPLICATION FILED DEC. 16, 1910.

995,604.

Patented June 20, 1911.

4 SHEETS-SHEET 4.



Witnesses
H. J. Austin
William C. Linton

Fig. 15.

By

Joshua R. H. P. H.

Attorney

UNITED STATES PATENT OFFICE.

MARTIN LUTHER KEAGY, OF CANTON, OHIO.

HOOP-MAKING MACHINE.

995,604.

Specification of Letters Patent. Patented June 20, 1911.

Application filed December 16, 1910. Serial No. 597,620.

To all whom it may concern:

Be it known that I, MARTIN L. KEAGY, a citizen of the United States, residing at Canton, county of Stark, and State of Ohio, have invented certain new and useful Improvements in Hoop-Making Machines, of which the following is a specification.

My invention relates to hoop making machines and particularly to machines for making embroidery hoops such as described in my application for Patent, Ser. No. 580,216, filed September 2, 1910.

The embroidery hoops which the machine forming the subject matter of this application is adapted to make, are constructed of sheet metal and provided with beaded edges and frictional contacting faces formed by embossing the metal intermediate its edges. The transverse section of the hoop may be either straight, concave or convex and the embossing to form the frictional surface may be either of a number of forms, a few of which are disclosed in the aforesaid application.

The object of my invention is to provide a machine for automatically forming hoops of the character mentioned.

A further and more specific object of my invention is to provide a machine of the class mentioned which will bead the edge of a strip of metal, give the same strip the desired cross-sectional configuration and frictional surface and finally curl the same into circular form ready to have its ends secured together in the desired manner.

A further object of my invention is to provide a machine of the class under consideration which will automatically feed strips successively to the forming portion of the device.

A further object of my invention is to provide a machine as mentioned which may be readily adjusted to feed strips of different lengths.

A still further object of my invention is to provide a machine for curling strips into circular form and equipped with means for adjusting the same to give the strip a curve of the desired radius.

A further object of my invention is to provide a feeding mechanism equipped with means for adjusting the same to feed blanks of various thicknesses.

Further objects of my invention are to provide a device of the class mentioned

which shall be of simple construction, strong and durable and which shall not readily get out of order.

Other objects will appear hereinafter.

With these objects in view, my invention consists generally in a pair of co-acting rollers adapted to turn the edge of a blank as it is fed between them, and a forming die adjacent the rollers for further turning the edges of the blank to form continuous beads on the edges thereof.

My invention further consists in a pair of rollers having co-acting faces adapted to shape a blank as it is passed between them to give the same the desired cross-sectional configuration and at the same time to emboss the blank to form a frictional surface, together with means for feeding blanks successively between the rollers.

My invention further consists in forming mechanism in combination with a magazine adjacent the same for holding a plurality of blanks, a reciprocating device for feeding blanks successively from the magazine to the forming mechanism and in guides for properly positioning the blank in the forming mechanism and maintaining it in proper relation thereto throughout the entire operation.

My invention further consists in a reciprocating feeding device provided with a blank engaging member and means for adjusting said member to properly engage blanks of various thicknesses.

My invention further consists in a guide means for feeding blanks through said guide successively and means adjacent the end of said guide for curling the blank into circular form as it passes from the guide.

My invention further consists in a guide, a blank feeding device and a blank curling device as above mentioned together with means for adjusting the curling device to give the blank a curvature of the desired radius.

My invention further consists in various details of construction and arrangements of parts all as will be fully described hereinafter and particularly pointed out in the claims.

My invention will be more readily understood by reference to the accompanying drawings forming a part of this specification, and in which—

Figure 1 is a side elevation of a hoop

making machine embodying my invention in its preferred form, Fig. 2 is a plan view thereof, Fig. 3 is a vertical longitudinal section through the forming mechanism, Fig. 4 is a transverse section on the line $x-x$ of Fig. 3, Fig. 5 is a plan view of the guide, the beading die and the curling mechanism, Fig. 6 is a plan view illustrating one of the blanks at the various stages in the process of forming, Figs. 7 and 8 are transverse sections of the blank taken on the line $y-y$ and $z-z$ respectively of Fig. 6, Fig. 9 is a vertical longitudinal section through the curling mechanism and illustrating a portion of the guide and the adjacent rollers, Fig. 10 is a detail sectional view illustrating the co-acting rollers for turning the edges of the blank, Fig. 11 is an end elevation of a pair of rollers for providing the blank with a frictional surface consisting of embossed diagonally disposed ribs or bosses, Fig. 12 is a detail view of a section of a hoop such as formed with the rollers illustrated in Fig. 11, Fig. 13 is a detail sectional view through the co-acting forming and surfacing rollers such as are used for giving the hoop a concave or convex cross-section, Fig. 14 is a detail elevation, partially in section of the upper portion of the magazine for the blanks, Fig. 15 is a detail vertical longitudinal section through the lower portion of the magazine and the blank feeding mechanism, Fig. 16 is a similar section through the feeding mechanism upon an enlarged scale, and Fig. 17 is a vertical transverse section through the magazine and feeding mechanism and taken substantially on the line $w-w$ of Figs. 14 and 15.

The frame of the forming mechanism comprises two substantially similar members 1 and 2 consisting of abutting base portions 3—3 provided with base flanges 4, horizontal off-set portions 5 at the upper edges of the portions 3 and parallel vertically disposed portions 6 which are spaced apart by the off-set portion 5. Formed on the inner faces of the portions 6 are flanges 7 which are in the same plane and upon which the guides, which will be described later, are supported.

Mounted in the frame are a pair of feed rollers 8—8, a pair of edge turning rollers 9 and 10 and a pair of shaping and embossing rollers 11 and 12. The rollers of each pair are arranged one above the other as shown clearly in Fig. 3 and the several pairs are arranged in horizontal alinement, that is, with the point of contact of the rollers of the several pairs in the same horizontal plane. The rollers 8 to 12 inclusive are mounted upon shafts 13, the lower shafts being journaled directly in the portions 6 of the frame and the upper shafts being mounted in boxes 14 mounted in ways 15 in the frame. Threaded through the upper

portion of the frame are a plurality of hand screws 16 provided at their upper ends with hand wheels 17 and having their lower ends swiveled in the blocks 14 as indicated at 18 in Fig. 4 there being a hand screw 16 for each of the blocks 14. By this construction the rollers of the several pairs may be adjusted toward or from each other to accommodate material of various degrees of thickness.

19 indicates lock nuts for securing the screws 16 and hence the blocks 14 in adjusted position. Each shaft 13 is reduced in diameter for a portion of its length forming a shoulder 20 against which the respective roller abuts and against which it is held by an adjustable collar 21.

22 indicates a pin or feather for securing the roller to the shaft to prevent relative rotation of the same. The enlarged portion of the shafts 13 project beyond the frame and feathered or keyed upon the projecting ends are pinions 23, the pinions of each pair of shafts intermeshing.

24 indicate idler pinions mounted on shafts 25 journaled in the frame below the lowermost pinions 23 and intermediate the same whereby the rollers 8 to 12 inclusive are driven in the proper direction to feed a blank through the machine.

25 indicate washers secured to the ends of the shafts 13 and 25 by screws 26 tapped into the end of the respective shafts. It is obvious that by removing the screws 26 and loosening the collar 21 the several shafts may be readily removed from the frame.

The rollers 8 are plain surfaced and serve to feed the blanks to the shaping rollers as they are received from the magazine to be described hereinafter. The edge turning rollers 9 and 10 are formed respectively on their peripheries with a central annular enlargement 27 and a co-acting annular channel or groove 28. These rollers co-act to turn the edge of the blank A as indicated at a in Figs. 6, 7 and 10. This is the initial step in forming the bead or roll on the edges of the blank and the bead or roll is completed by a die, to be described hereinafter, located between the rollers 9 and 10 and the rollers 11 and 12. The rollers 11 and 12 are provided with faces adapted to give the blank the desired cross-sectional configuration. As shown in Fig. 11 the faces on the rollers are straight transversely and will form cylindrical hoops when completed, that is hoops having a straight transverse section. As shown in Fig. 13 the roller 11 is provided with a central convex face 29 and the roller 12 with a corresponding concave portion 30 which will give the hoop or blank a curved cross-section. The roller 11 is provided with a pair of parallel peripheral grooves 31 to receive the turned edges or beads on the blank, B indicating

the bead. The portion of the roller 11 between the grooves 31 and the co-acting portion of the roller 12 are provided with means for embossing the blanks to form frictional surfaces thereon. This comprises bosses or projections 32 on one of the rollers and corresponding depressions 33 on the other. These may partake of any desired form. As illustrated in Fig. 11 they consist of diagonally disposed bosses and recesses which will give the blank a surface such as indicated at C in Fig. 12.

At the forward end of the frame, at a distance from the rolls 11 and 12, and in horizontal alinement therewith, is a pair of rollers 34 and 35. These are mounted on shafts 13 in the same manner as described in relation to the rollers 8 to 12, the lower shaft being journaled in the frame and one end of the upper shaft being journaled in a box 14 adjusted by means of the screw 16 and hand wheel 17. The other end of the upper shaft is journaled in a pillow box or bearing 37 mounted upon the guide plate to be presently described.

38 indicates an idler meshing with the pinion 23 on the shaft of the roller 12 and with a similar pinion on the shaft of the roller 35.

Resting upon and secured to the flanges 7 by screws 39 are a series of guide members, the first guide member 40 extending from the magazine hereinafter described, to a position adjacent the rollers 9 and 10, the second guide member 41, which is also the beading die, extending between the rollers 9 and 10 and the rollers 11 and 12 and the third guide member 42 extending from the rollers 11 and 12 to the forward end of the machine. Each of the guide members comprises a bottom plate 43 and a top plate 44 between which is formed a passage way 45 which is obtained by recessing either or both of the adjacent faces of the plates 43 and 44. The guide member 40 is provided with an aperture 46 to receive the adjacent portions of the rollers 8 and are beveled at the ends of the aperture as at 47 in order that the guide may extend between the rollers as close as possible to the coöperating portions thereof. The portion of the passage way 45 forward of the rollers 8 is formed with a flared mouth 48 to guide the ends of the blanks as they are passed into the guide 40.

The beading die is formed by gradually contracting the width of the passage way 45 and giving the edges thereof a well rounded form as at 49. After the edges are partially turned by the rollers 9 and 10 they are easily rolled into the required bead by drawing the blank through the beading die. The edges of the guides 40 and 41 are also beveled as at 47' in order that the guides may extend as close as possible to the contacting portions of the rollers and the por-

tion of the guides adjacent the rollers 11 and 12 and 34 and 35 are similarly beveled for the same purpose.

39' indicate screw holes to receive the screws 39. The pillow block 37 is secured to the upper face of the guide 42 adjacent its forward end by screws 39''.

The forward end of the lower plate 43 of the guide 42 is provided with longitudinal extensions 50 which project beyond the end of the frame and upon which is mounted the blank curling device. The curling device comprises a carriage slidably mounted on the extensions 50 which form ways for the same, a wedge shaped member pivotally mounted on the carriage adjacent the rollers 34 and 35, means for adjusting the angular position of the wedge shaped member and means for adjusting the same toward and from the rollers.

51 indicates the carriage which consists substantially in a block having its lateral edges provided with grooves 52 to receive the edges of the extensions 50 which form ways for the block or carriage. The forward portion of the block is cut away forming a recess 53 and in said recess is mounted a wedge shaped member 54 upon a transverse pin 55. The upper and lower faces of the member 54 are provided with grooves 56, the forward ends of which are in alinement with the passage 45 in the guides. The rear end of the member 54 is provided with a pair of lugs 57 one of which extends above and one below the rear portion of the block or carriage, and through said lugs are threaded screws 58 which bear against the carriage as shown clearly in Figs. 3 and 9. It is obvious that by turning the screw 58 the angle of the member 54 may be adjusted, and that by such adjustment the nose 59 of the wedge shaped member may be thrown either above or below the plane of the passage way 45. The beaded and embossed strip issuing from between the rollers 34 and 35 strikes against the bottom wall of one of the grooves 56 and said wall being disposed at an angle to the normal path of the strip, the latter is curled into circular form. It is obvious that the degree of curvature is dependent upon the angle at which the bottom wall of the groove is presented to the strip and the distance of the member 54 from the rollers. Extending across the ends of the extensions 50 is a cross bar 60 in which is swiveled a screw 61, the end of the screw being threaded as at 62 into the carriage 51. By turning the screw 61 the distance between the rollers and the wedge shaped member is readily adjusted. An embroidery hoop comprises two rings one within the other and it is obvious that when the rings have beaded edges the bead must be upon the outer face of one ring and on the inner face of the other ring. It is on

this account that I provide the curling member which may be adjusted to turn the strip either above or below the same. With the machine illustrated in the drawings by turning the strips or blanks downwardly they are curled with the bead upon the outer face, thereby forming the outer ring, and by turning the strips upwardly the bead is formed on the inner side thereby forming the inner ring. In order to prevent the strip from curling back under the guide 42 and becoming entangled in the roller 35 I form the groove 56 at an angle to the longitudinal axis whereby the strips are curled out of the central axis of the machine and to the side of the frame. It should be noted that the forward end of the member 2 of the frame is cut away below the roller 35 as indicated at 63 in Fig. 1 and above the roller as indicated at 64. By cutting away the frame member in this manner ample space is obtained for the lateral curling of the strips and it is for this reason also that the pillow block 37 is arranged upon the guide member 42.

65 indicates a pair of triangular or wedge shaped lugs extending inwardly from the inner faces of the extensions 50 and arranged upon either side of the nose of the member 54.

The device is preferably power driven but I provide means whereby it may be driven by power or by hand. To this end one of the shafts 25 is extended beyond the gear 24 and upon said end is secured a belt wheel 66. The opposite end of the shaft is extended and squared as at 67, providing means for attaching a crank.

The bottom plate of the first guide 40 is extended rearwardly from the frame 1 a considerable distance forming a table 68 which also constitutes the bottom of the magazine. The rear end of the table 68 is supported upon a standard or pedestal 69. Secured to the upper face of the member 68 is a pair of flat longitudinally disposed strips 70, the inner edges of which are spaced apart a distance substantially the width of the blanks to be used, the strips thus forming a groove to guide the blanks as they are passed successively from the magazine to the rollers 8. Extending upwardly from one of the strips 70 with its inner face flush with the inner edge thereof is a plate 71 which constitutes one side of the magazine. The plate 71 is preferably secured in position by the angle irons or brackets 72. Secured to the upper portion of the plate 71 is the top member 73 of the magazine. Extending upwardly from the opposite member 70 from that to which the member 71 is secured is a plate 74 which constitutes the lower portion of the opposite side of the magazine and which is preferably quite low in order to give access to the magazine above

the same for supplying it with the blanks. Hingedly mounted on the member 74 are a plurality of bars or fingers 75 which when in vertical position complete the side of the magazine and maintain the blanks within the same. The fingers 75 are preferably fixed to a longitudinally disposed bar 76 rotatably mounted in brackets 77 provided on the outer face of the members 74. The members 75 are connected adjacent their upper ends by a longitudinally disposed bar 78. When the members 75 are in vertical position their upper ends rest in recesses 79 formed in the edge of the top member 73. The top 73 projects laterally beyond the vertical plane of the fingers 75 and is provided with a longitudinal groove 80 intersecting the recesses 79. Hingedly mounted in one end of the groove 80 as at 81 is a bar 82 having a handle 83 whereby it may be raised out of the groove or lowered thereinto. In closing the magazine, the fingers 75 are raised into vertical position with their ends in the recesses 79 after which the bar 82 is dropped into the groove 80 behind the ends of the bars, thereby locking them in position. The upper ends of the fingers 75 are preferably cut away as at 84 to receive the bar 82.

The forward end of the magazine is closed by a vertical plate 85 extending downwardly to the strips 70 and the rear end is formed by an adjustable block 86. The lower end of the block 86 is slidably mounted between the strips 70 and the upper end is provided with a set screw 87 which extends through a longitudinal slot 88 in the top member 73.

89 indicates a jam nut on the screw 87 for securing the block 86 in position. By adjusting the block 86 the magazine may be adjusted in length to accommodate any length of blanks within its capacity.

90 indicates a small transverse horizontal rib or lug on the inner face of the block 86 which prevents buckling of the blanks.

The means for feeding the blanks from the magazine to the forming mechanism comprises a slide mounted on the member 68, means on the slide for engaging the lowermost of the blanks and means for reciprocating the slide. The slide comprises a plate 91 arranged beneath the member 68 and provided with longitudinally disposed ribs 92 forming bearing surfaces engaging the under face of said member. The plate 91 is provided with upwardly extending side portions 93 having their upper edges in the plane with the upper face of the member 68. Secured to the upper edges of the portions 93 are plates 94 which rest upon the upper edges of the members 68 to support the slide. Secured to the upper face of the plate 91 of the slide is a block 95 held in position by screws 96. The member 68 is centrally and longitudinally slotted as at 97 to receive

the block 95. The block 95 is provided with a transverse aperture 98 in its upper face having ways 99 formed longitudinally of its bottom wall. Slidably mounted in the aperture 98 and upon the ways 99 is a block 100 which projects slightly above an upper face 101 of the block 95 and which is provided with a forwardly inclined upper face 102. Secured to the forward portion of the face 101 of the block 95 is a spring tongue 103. One end of the tongue is secured to the block 95 by a screw 104 and the free end thereof rests upon the upper face 102 of the block 100. The tongue 103 is provided with a short lip 105 which engages the rear ends of the blanks A in the magazine successively as the slide is reciprocated. By adjusting the position of the block 100, the lip 105 may be raised and lowered to adjust the device for blanks of various degress of thickness.

106 indicates a screw threaded through the block 95 and swiveled into the block 100 by means of which the latter may be adjusted.

Adjustably mounted on the member 68 is a depending bracket 107 which is held in adjusted position by a set screw 108. Mounted in the bracket 107 is a crank shaft 109 upon one end of which is mounted a sprocket wheel 110 connected by a chain 111 with a sprocket wheel 112 on the shaft of one of the rollers 8. In this way the slide is operated simultaneously with the forming mechanism and from the same source. The crank shaft 109 is connected to the slide by the adjustable pitman 113. This comprises a tubular portion 114 connected to the crank and a telescopic portion 115 pivotally connected between a pair of ears 116 on the slide.

117 indicates a set screw for holding the members 114 and 115 in adjusted position. When the block 86 is adjusted for blanks of a fixed size, the pitman 113 is also adjusted in order that with each back stroke the lip 105 will extend a short distance to the rear of the lowermost blank. When the blanks to be used are quite short, the bracket 107 may be secured in a position closer to the frame 1 of the forming mechanism and sprockets of larger size may be substituted for the sprocket wheels 110 and 112, whereby the feed of the strips or blanks from the magazine is more rapid.

The operation of the device is as follows: The bar 82 is first raised and the fingers 75 swung downwardly to open the magazine. The blanks are then placed in the magazine with the lowermost blank resting on the member 68 and with the forward ends of all of the blanks abutting the member 85. The member 86 is then adjusted until its forward face engages the rear ends of the blanks. The pitman 113 is then adjusted until the lip 105 carried by the slide 91 will pass be-

yond the rear ends of the blanks at each stroke. After the blanks are placed in the magazine the fingers 75 are raised into vertical position and secured by the bar 82. Power is then applied which causes reciprocation of the slide 91 and turning of the rollers of the forming mechanism. With each reciprocation of the slide the lowermost blank in the magazine is pushed forwardly until its forward end is engaged by the rollers 8. These rollers feed the strip through the passage way 45 to the rollers 9 and 10, which rollers turn the edges of the blank in the manner hereinbefore described. The strip or blank then passes through the beading die where the bead is completed and then to the forming rollers 11 and 12 which give the blanks the desired cross sectional configuration and provide the same with the frictional surface. The blank then passes on through the guide member 42 to the rollers 34 and 35, the former of which is provided with peripheral grooves 34' to receive the beaded edges of the strip to prevent crushing the same. The forming mechanism is so proportioned that the forward end of the blank is engaged by the rollers 34 and 35 before the blank passes completely from between the rollers 8, whereby a positive feed of the strip is had at all times. The forward end of the strip then engages the bottom wall of one of the grooves 56, the curling block 54 having been previously adjusted to curl the blank in the desired direction, that is to curl the blank with the bead on the inside or outside. After the curled strips pass from the machine their ends may be secured together in any desired manner.

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

1. In a device of the class described, a pair of feed rollers, a pair of edge turning rollers and a pair of embossing rollers, guide members interposed between said feed rollers and said edge turning rollers and between said edge turning rollers and said embossing rollers, the last said guide member having a passage way therethrough constituting a beading die, substantially as described.

2. In a device of the class described, means for forming a bead upon one face of a blank, means for feeding blanks through the bead forming means, means for curling the beaded blanks into circular form and means for adjusting the curling means whereby the beaded blanks may be curled in either direction to bring the bead upon the inside or the outer side as desired, substantially as described.

3. In a device of the class described, blank feeding and blank beading mechanisms, the latter being adapted to form beads upon one

face of the blanks as they are fed there-through, in combination with blank curling mechanism, said curling mechanism comprising a pair of rollers one of which is provided with peripheral grooves to receive the beads, a wedge shaped member having its nose arranged adjacent and in alinement with the contacting portions of said rollers and means for adjusting said wedge shaped member to throw the nose above or below said contacting portion and to vary the angle of its faces to the line of travel of the blanks, substantially as described.

4. In a device of the class described, blank curling mechanism comprising a pair of feed rollers, a member pivotally mounted adjacent said rollers and having a longitudinal groove or channel therein, means for adjusting said member to present the bottom of said groove or channel at various angles to the tangent of the contacting portions of said rollers and said groove or channel being angularly disposed longitudinally to curl the blanks laterally, substantially as described.

5. In a device of the class described, blank curling mechanism comprising a pair of feed rollers, guides adjacent said rollers, a carriage slidably mounted on said guides, means for adjusting said carriage toward and away from said rollers, a wedge shaped member pivotally mounted on said carriage and means for adjusting the angle of said wedge shaped member, substantially as described.

6. In a device of the class described, a pair of parallel frame members, horizontal flanges formed on the inner faces of said frame members, guide members resting upon and secured to said flanges, each of said guide members comprising a lower plate and an upper plate with a passage way between them, feed rollers and forming rollers having their co-acting edges interposed between the ends of said guide members and curling means adjacent the end of the last guide member, substantially as described.

7. In a device of the class described, blank forming mechanism including a pair of feed rollers, a magazine adapted to hold a plurality of blanks and means for feeding

blanks successively from said magazine to said feed rollers, said feeding mechanism comprising a slide mounted to reciprocate beneath said magazine, the bottom of said magazine being longitudinally slotted, a spring tongue on said slide, a lip on said tongue adapted to engage the ends of the blanks, and adjustable means on said slide for raising and lowering said lip, substantially as described.

8. In a device of the class described, a magazine, said magazine comprising a bottom plate having a longitudinal slot therein, a fixed side, a top secured to said fixed side, a hinged side hingedly mounted at its lower end and means on said top for securing the hinged side in closed position, substantially as described.

9. In a device of the class described, a magazine comprising a bottom, a fixed side, a top fixed to the upper end of said fixed side, a hinged side, means for securing the hinged side in closed position, a fixed end and an adjustable end, and means for feeding blanks from the magazine successively, substantially as described.

10. In a device of the class described, a magazine comprising a bottom, a pair of sides, a fixed end and an adjustable end, means for feeding blanks successively from said magazine and means on said adjustable end to prevent buckling of the blanks in the magazine, substantially as described.

11. In a device of the class described, a magazine comprising a bottom, sides, a fixed end and an adjustable end, in combination with means for feeding blanks successively from said magazine, said means comprising a slide mounted to reciprocate beneath said magazine, a blank engaging member on said slide, a crank shaft, means for driving said shaft and an adjustable pitman connecting said crank shaft and said slide, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

MARTIN LUTHER KEAGY.

Witnesses:

MINNIE E. HOFFMAN,
WENDELL HY. TRUCK.