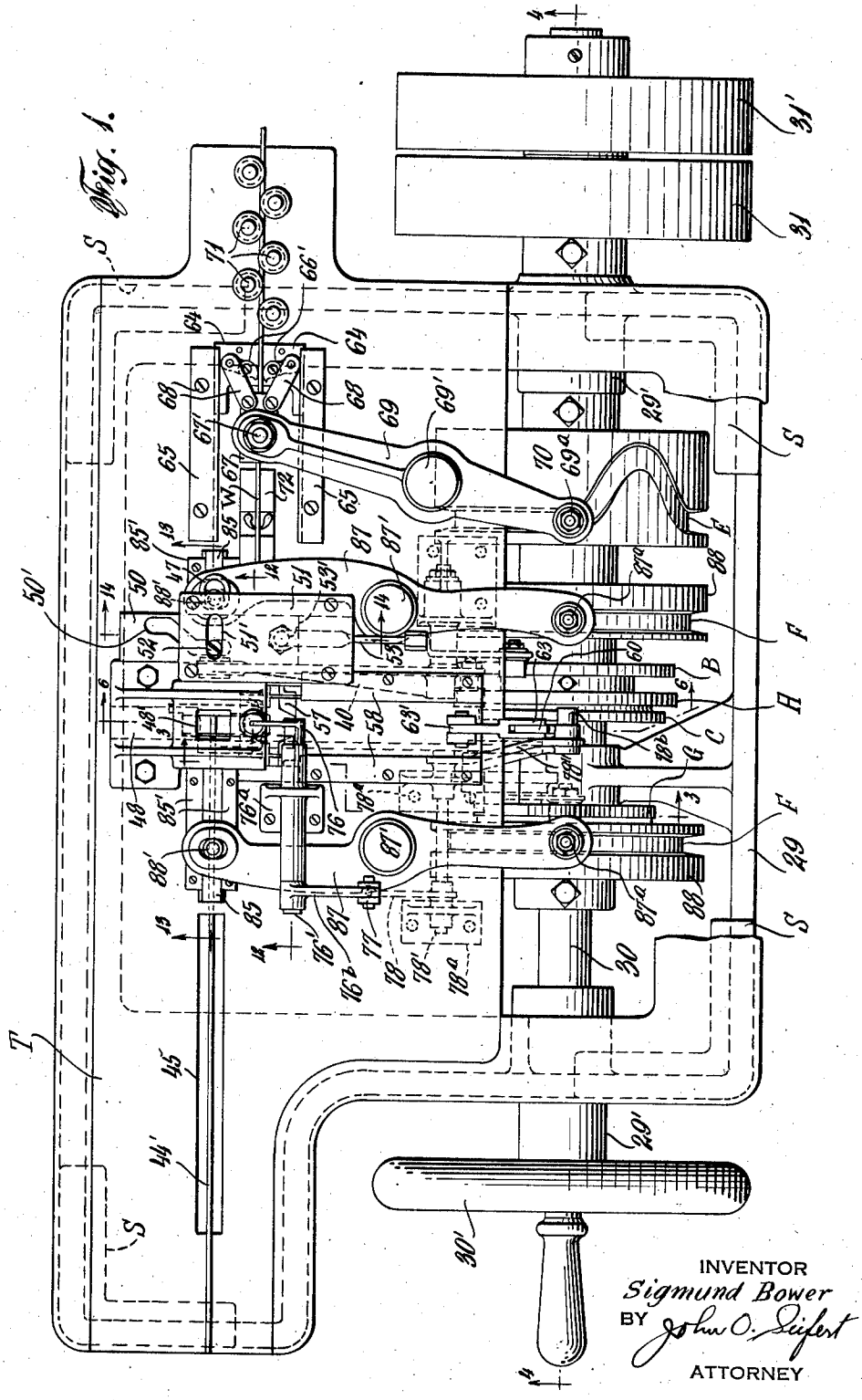
Aug. 19, 1941. S. BOWER 2,253,322

MACHINE FOR APPLYING REINFORCING RINGS TO CLOTHESPINS

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Fig. 1.



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MACHINE FOR APPLYING REINFORCING RINGS TO CLOTHESPINS

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Fig. 2.

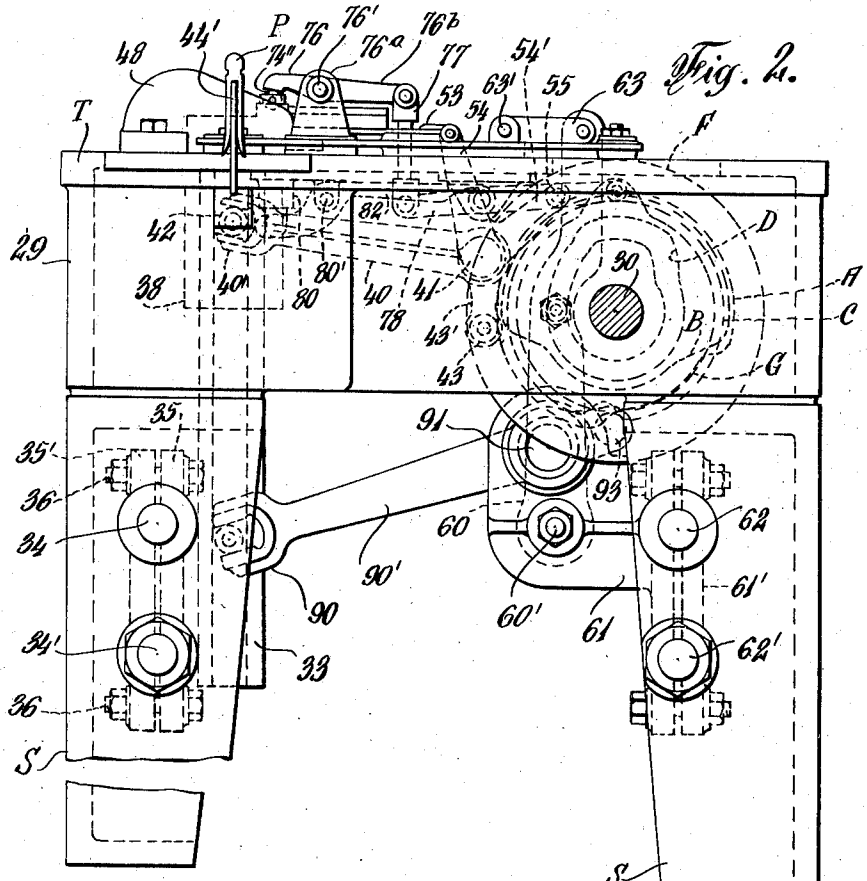
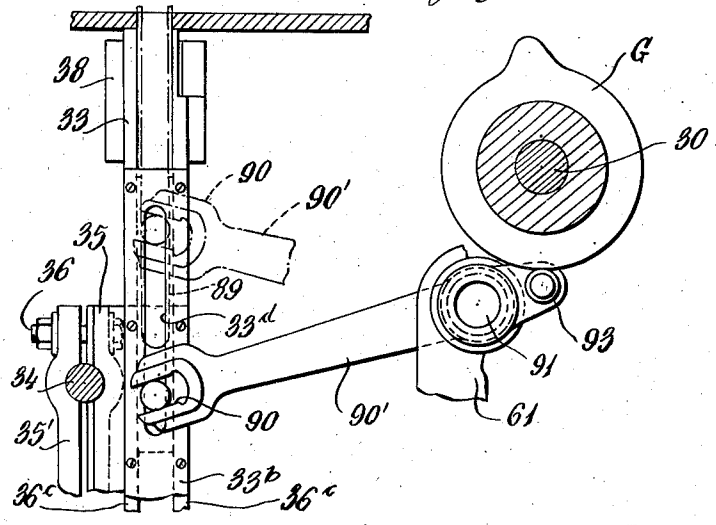


Fig. 3



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MACHINE FOR APPLYING REINFORCING RINGS TO CLOTHESPINS

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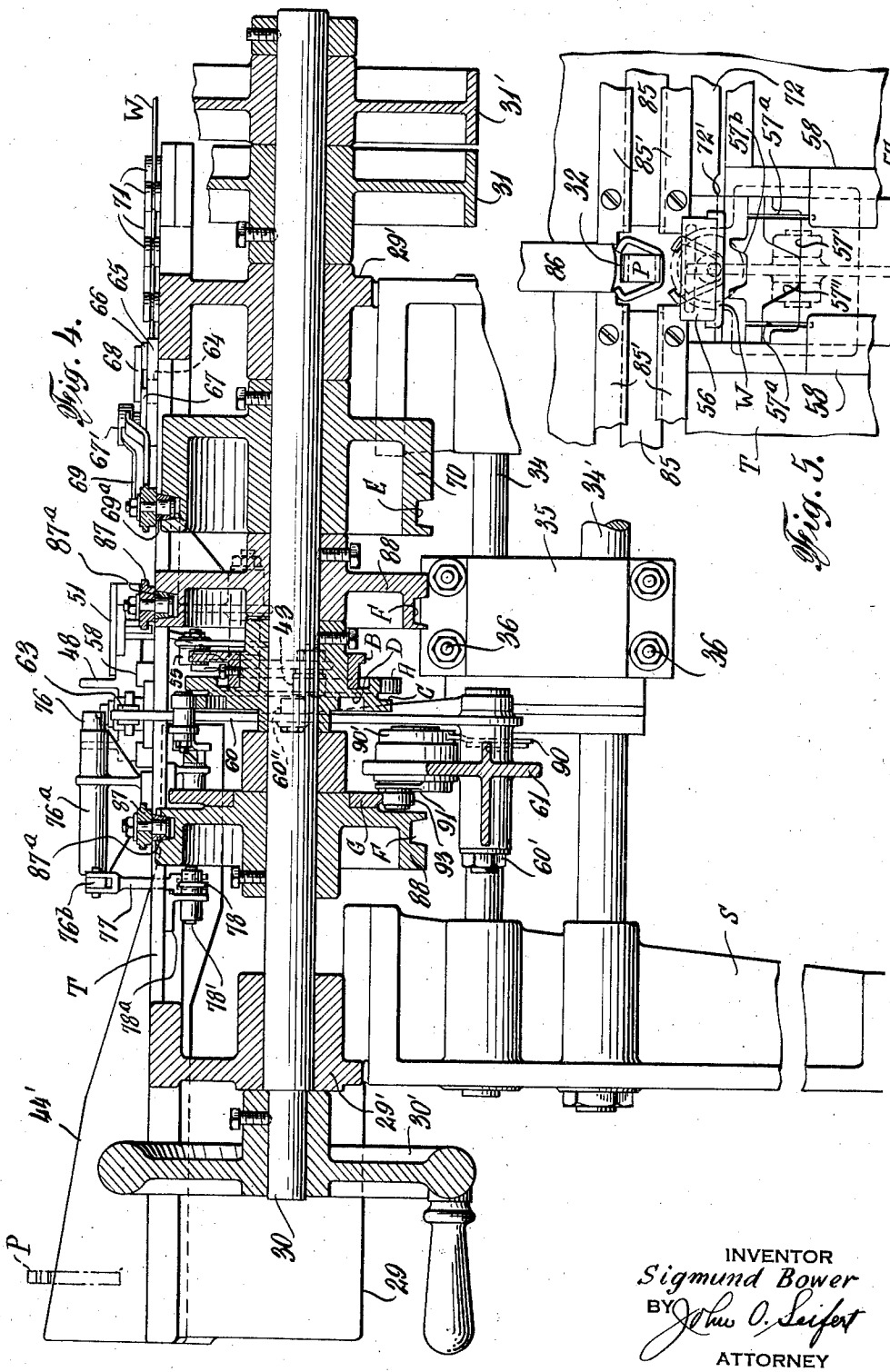


Fig. 4.

Fig. 5.

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MACHINE FOR APPLYING REINFORCING RINGS TO CLOTHESPINS

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Fig. 6.

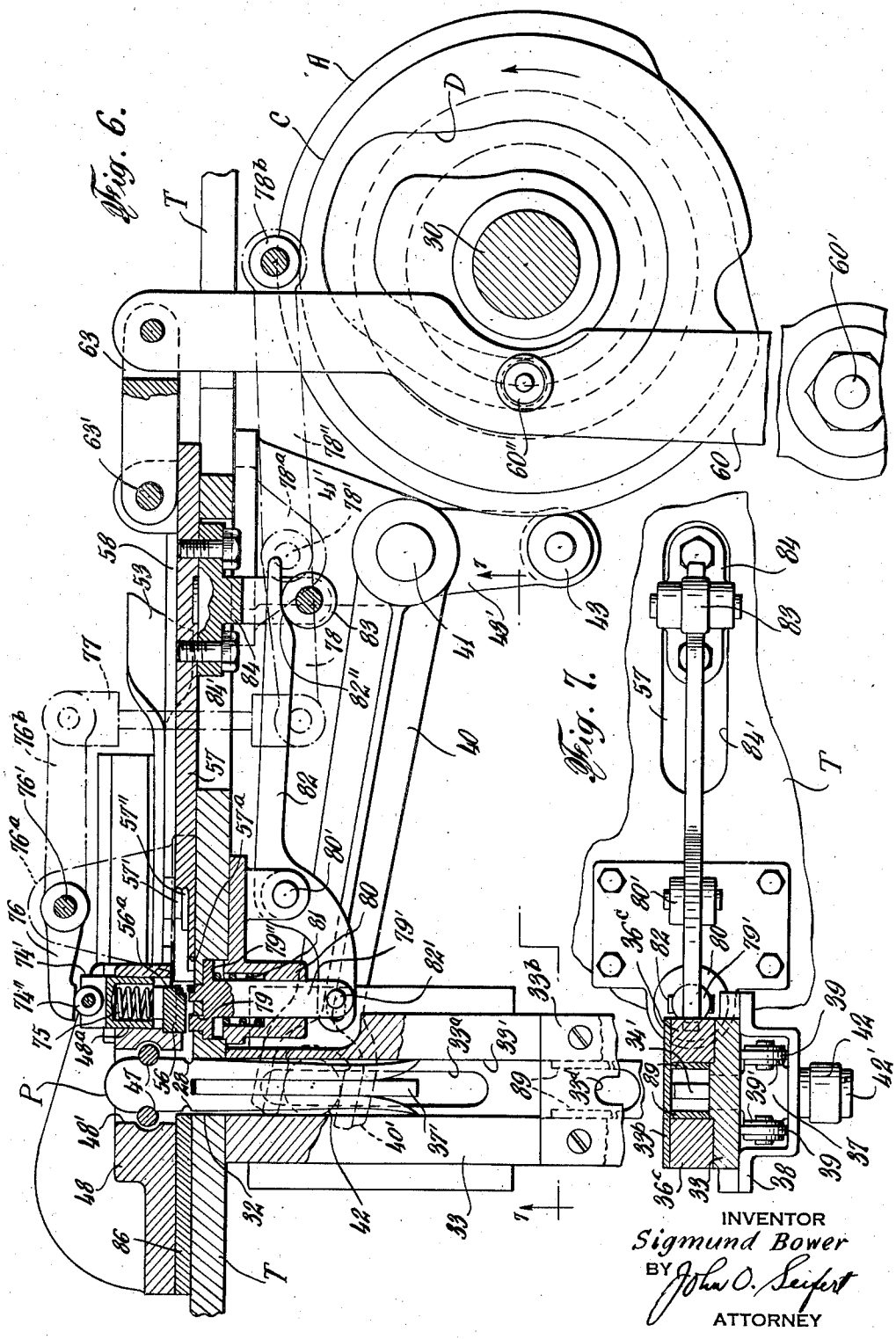


Fig. 7.

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MACHINE FOR APPLYING REINFORCING RINGS TO CLOTHESPINS

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Fig. 8.

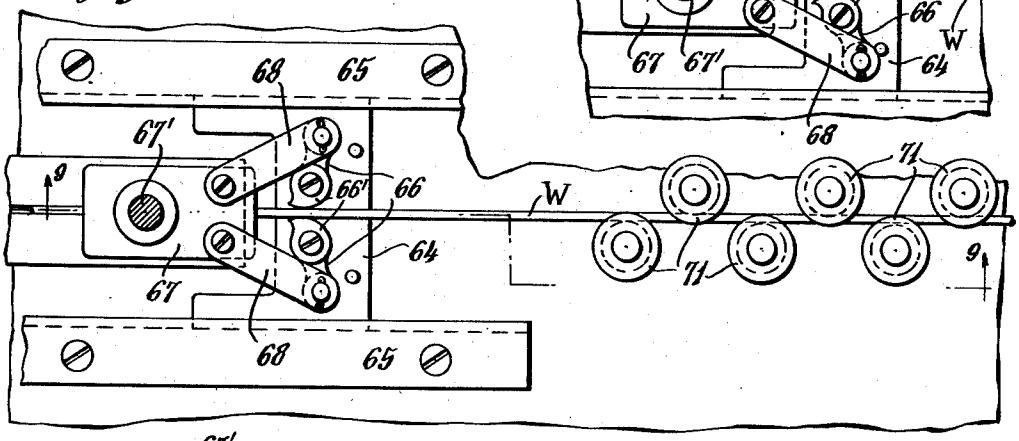


Fig. 10.

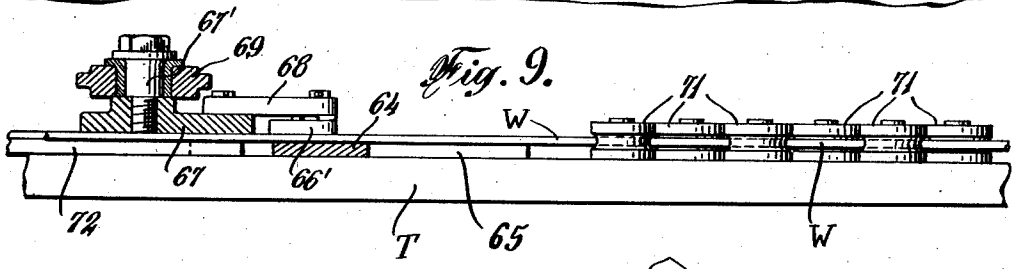
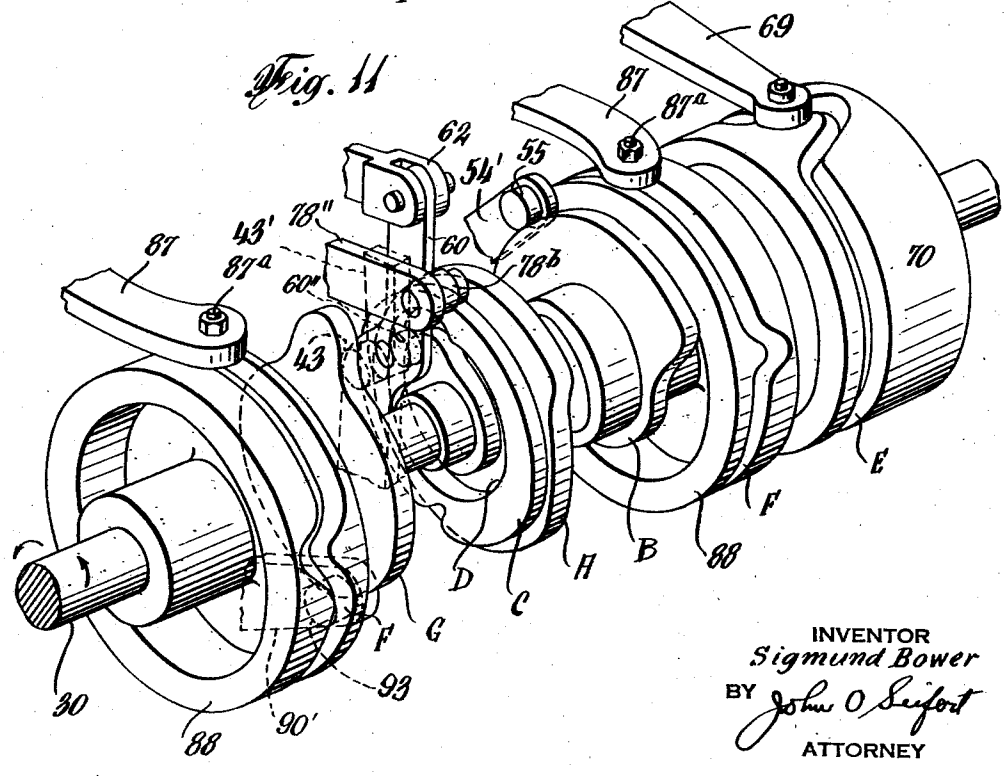


Fig. 9.

Fig. 11.

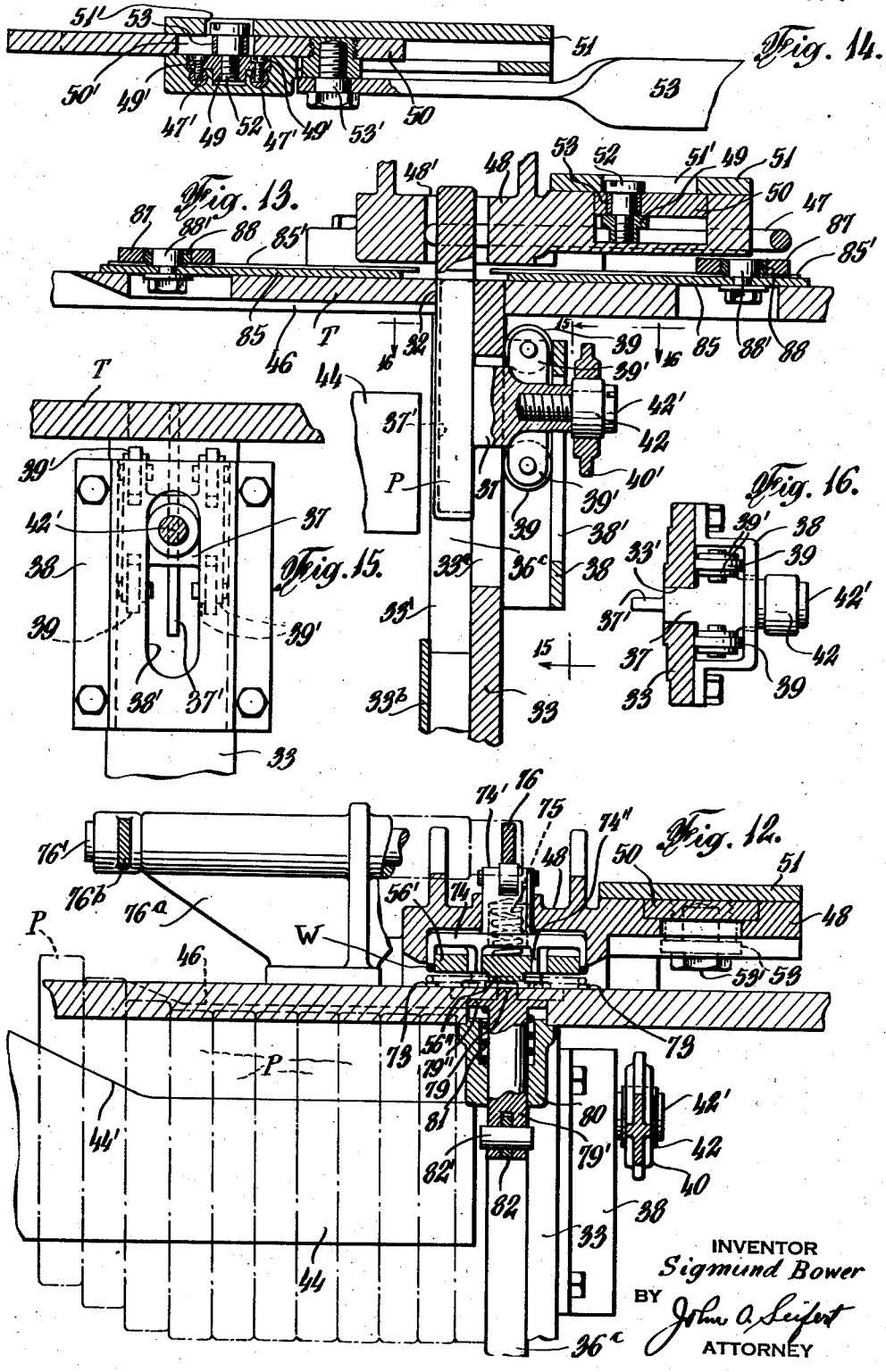


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MACHINE FOR APPLYING REINFORCING RINGS TO CLOTHESPINS

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MACHINE FOR APPLYING REINFORCING RINGS TO CLOTHESPINS

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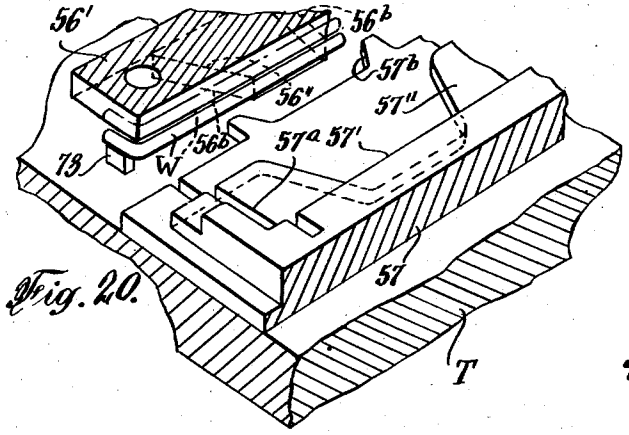


Fig. 20.

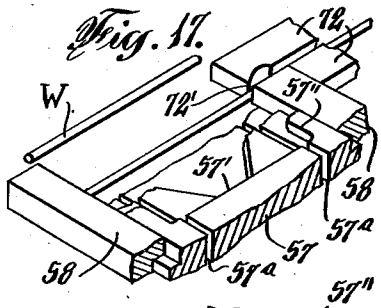


Fig. 17.

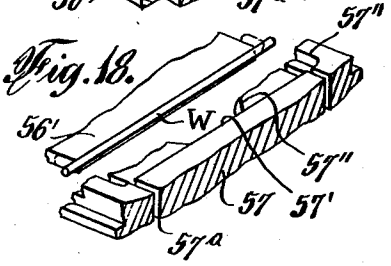


Fig. 18.

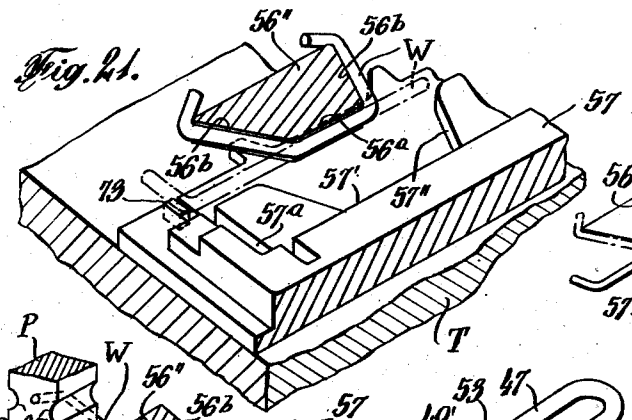


Fig. 21.

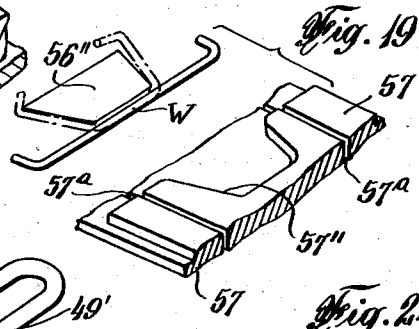


Fig. 19

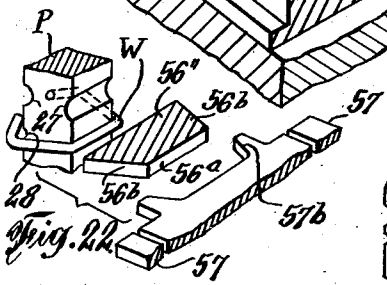


Fig. 22.

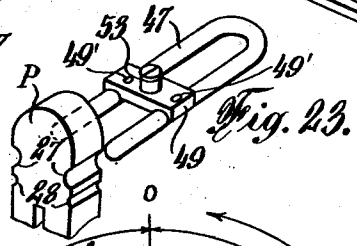


Fig. 23.

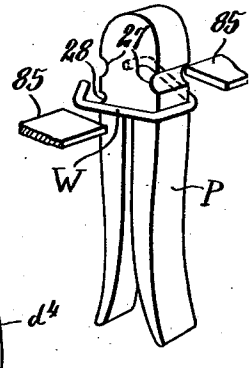


Fig. 24.

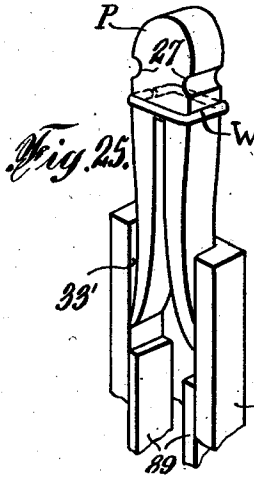


Fig. 25.

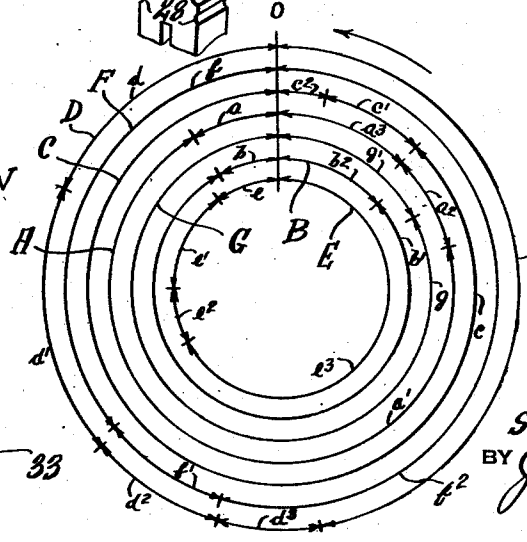


Fig. 26.

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Patented Aug. 19, 1941 2,253,322

UNITED STATES PATENT OFFICE

2,253,322

MACHINE FOR APPLYING REINFORCING RINGS TO CLOTHESPINS

Sigmund Bower, Brooklyn, N. Y.

Application February 8, 1940, Serial No. 317,886

20 Claims. (Cl. 140—93)

This invention relates to machines for applying metal, preferably wire, reinforcing bands or rings to clothes-pins, adjacent the crotch thereof to prevent an outward force exerted on the legs of the pin as it is applied to a line from splitting the pin. While the machine is adapted for use in applying reinforcing bands or rings to clothes-pins having a body or shank of different cross sectional form, it is particularly adapted for applying reinforcing bands or rings to clothes-pins having a body or shank of rectangular form in cross section with recesses extending parallelly transversely of the opposite sides of the body or shank of the pin from which the legs extend and adjacent the crotch for the engagement of an intermediate portion and opposite end portions of the reinforcing band or ring to prevent displacement thereof longitudinally of the pin, and the body or shank of the pin being also provided with recesses extending parallelly of and in predetermined spaced relation longitudinally of the pin to said first recesses adapted to constitute finger engaging portions to facilitate applying and removing the pin from a line, and also adapted for engagement of means to support the pin with the recesses adjacent the crotch in predetermined position relative to means to apply the reinforcing band or ring to the pin.

It is the object of the present invention to provide an improved machine for applying reinforcing bands or rings in quick succession to clothes-pins, and comprising a supporting frame including a table or plate having an opening therein with means to successively feed and engage clothes-pins in said opening with the body or shank of the pin projecting above the table with the upper recesses in the body or shank in position to be releasably engaged by a member reciprocatory transversely of the opening in the table and support the pin with the recesses adjacent the notch in predetermined position relative to the top of the table, and the provision of means mounted on the table and disposed at the side of a pin having recesses therein engaged in the table opening and operative to preform a length of wire to open or partial ring form, position said ring with the intermediate portion engaging a recess adjacent the crotch in the pin, bend the open ring member to ring form encompassing or encircling the body or shank of the pin with the opposite ends of the ring engaging in the opposite recess adjacent the crotch in clamping relation to the pin, and release the pin support from the pin and eject the pin with the reinforcing ring applied thereto from the opening in the pin.

In the drawings accompanying and forming a part of this application, Figure 1 is a plan view of a machine illustrating an embodiment of the invention.

Figure 2 is an end elevation looking at the left of Figure 1 with a supporting standard for the table upon which the operative mechanism is mounted and a portion of the drive shaft carrying a hand wheel broken away.

Figure 3 is a sectional view taken on the line 3—3 of Figure 1.

Figure 4 is a longitudinal sectional view taken on the line 4—4 of Figure 1.

Figure 5 is a plan view of the means to preform a length of wire to open ring form and showing the successive steps of forming and positioning the ring relative to a pin preparatory to bending it to final ring form encompassing the pin.

Figure 6 is a cross sectional view taken on the line 6—6 of Figure 1.

Figure 7 is a view taken on the line 7—7 of Figure 6.

Figure 8 is a plan view of wire feeding means showing the same in operative feeding position.

Figure 9 is a sectional view taken on the line 9—9 of Figure 8.

Figure 10 is a fragmentary detail plan view of the wire feeding means showing the same in inoperative position.

Figure 11 is a perspective view of cams carried on the driving shaft for actuating the different mechanisms.

Figure 12 is a sectional view taken on the line 12—12 of Figure 1.

Figure 13 is a sectional view taken on the line 13—13 of Figure 1.

Figure 14 is a sectional view taken on the line 14—14 of Figure 1.

Figure 15 is a view taken on the line 15—15 of Figure 13.

Figure 16 is a sectional view taken on the line 16—16 of Figure 13.

Figure 17 is a fragmentary view in perspective of means for severing a predetermined length from a strand of wire associated with the means to preform a length of wire to open ring form.

Figure 18 is a view similar to Figure 17 but showing the preforming means as actuated and bending the ends of the wire at a right angle to the body thereof.

Figure 19 is a fragmentary detail view in per-

spective showing the means for forming the wire with the bent ends to partial ring form.

Figure 20 is a view similar to Figure 18 showing the wire with the bent ends supported relative to means to shape it to open ring form.

Figure 21 is a view similar to Figure 20 but showing the wire preformed to open ring form.

Figure 22 is a perspective view of parts of the means to preform the wire to open ring form and actuated to position the preformed ring relative to a clothes-pin preparatory to bending it to final ring form encompassing the clothes-pin.

Figure 23 is a detail view in perspective of means to releasably support the pin in predetermined position relative to the ring forming means.

Figure 24 is a perspective view of a pin with a preformed open ring positioned relative thereto and showing the means for bending the wire to final ring form encompassing the pin.

Figure 25 is a detail view in perspective of the means for ejecting a pin with the applied reinforcing ring; and

Figure 26 is a view showing in a diagrammatic manner the operation of the cams to effect actuation of the different mechanisms of the machine.

The machine is particularly adapted to be used in applying reinforcing rings or bands to clothes-pins having a body or shank of rectangular form in cross section, as shown at P in Figures 22 to 25, inclusive, although it is also adapted to apply reinforcing rings or bands to clothes-pins having a body or shank of different cross sectional shape, as of circular form. To facilitate applying clothes-pins to and removing the pins from a line the shank is provided with a reduced finger engaging portion, and when the shank is of rectangular form consisting of parallel recesses or grooves **27** extending parallelly of opposite side portions of the shank from which the legs of the pin extend. The pin is also provided with recesses or grooves **28** extending parallelly of and spaced a predetermined distance longitudinally of the pin from the recesses **27** and located adjacent the crotch of the pin and preferably extends in the plane of the crotch of the pin, as shown. The reinforcing rings or bands are formed of a predetermined length of a suitable metal strip or strand, preferably wire, preformed to open or partial ring form and shaped to final ring form encompassing or encircling the pin and clamped thereto with an intermediate portion of the ring engaging one of said recesses **28** and the ends engaging the recess **28** opposite the recess engaged by the intermediate portion, as shown in Figure 25.

In the machine illustrated the mechanisms for carrying out the invention are mounted upon a table or plate T of a frame having a downwardly extending flange **29** disposed about the marginal portion thereof and supported upon standards S. The different mechanisms are actuated in proper timed sequence by cams on a cam or drive shaft **30** journaled in bosses **29'** extending laterally from the portions of the table flange **29** at the opposite ends of the table. A hand wheel **30'** is fixed on one end of said shaft to manually rotate the shaft, and pulleys **31**, **31'** are mounted on the opposite end of the shaft for engaging of a belt to rotate the shaft from a suitable source of power, the pulley **31** being fixed on the shaft on the other pulley **31'** loose thereon.

The table T is provided with an opening **32** for the engagement of a clothes-pin with the body or shank extending above the table. To engage clothes-pins successively in said opening a member **33** having a slideway **33'** opening through a side thereof is mounted with one end engaging in the opening **32** and extending downwardly from the table. The member **33** is supported at the lower end by a bracket mounted on a pair of rods **34**, **34'** mounted at the ends in and extending between the standards S supporting the rear portion of the table T by a bracket **35** secured upon said rods by a clamping member **35'** secured to the bracket by bolts **36**, as shown in Figures 2 and 3. The member **33** is disposed relative to the side of the laterally extending portion of the bracket **35** and secured thereto by screws extended through openings in a plate **33^b** and rails **36^c** juxtaposed to the member **33** and constituting extensions of the side walls of the slideway in said member, and may constitute continuations of said walls of the slideway.

A slide **37** has a part slidable in an elongated opening **33^a** in the member **33** to have reciprocatory movement toward and away from the table, the slide having an elongated portion of reduced width **37'** extended laterally therefrom into the slideway **33'** and adapted to engage between the legs and with the crotch of a clothes-pin P engaged laterally thereon in the slideway. To mount the slide in the slideway of the member **33** to have reciprocatory movement a yoke member **38** having flanges extending laterally from the opposite sides thereof is secured to the side of the member **33** opposite the side from which the clothes-pin engaging portion **37'** of the slide extends by machine screws engaging openings in said flanges and threaded into openings in the member **33**, said yoke member in conjunction with the member **33** forming a runway for rollers **39** rotatably carried between pairs of ears **39'** extended upwardly and downwardly from opposite sides of a portion extending laterally of the side of the slideway opposite the pin engaging portion **37'**, as shown in Figures 13, 15 and 16, the rollers reducing frictional resistance to the movement of the slide and preventing canting of the slide and a consequent binding of the slide in the slideway. The slide **37** is reciprocated by a cam A on the shaft **30** through an arm **40** fixed on a rock shaft **41** journaled in a bracket **41'** fixed to and extending downwardly from the bottom of the table T, the arm being operatively connected to the slide **37** by a bifurcation **40'** at the end thereof engaging a roller **42** rotatably mounted on a headed stud **42'** screw threaded into an opening in a part of the slide extended through a slot **38'** in the yoke member **38**, as shown in Figure 13. The shaft **41** is rocked from the cam A by a roller **43** following said cam rotatably carried by an arm **43'** fixed on said rock shaft **41**.

To feed clothes-pins to be successively engaged upon the pin support **37'** of the slide there is provided a rail adapted to be straddled by the clothes-pins, said rail having a horizontal portion **44** extending in parallel predetermined spaced relation to the bottom of the table T with the end terminating adjacent the pin engaging member **37'** of the slide **37** and merges with a portion having an upper declining edge **44'** extending upwardly through an opening **45** in the table upon which the clothes-pins are engaged manually or by suitable mechanical means, not shown, to straddle the rail. To prevent lateral tilting of the clothes-pins on the rail there is provided a groove or recess **46** in the bottom of the table T extending parallelly of the horizon-

tal portion 44 of the rail and adapted to be engaged by the heads of pins on the rail. The length of the horizontal portion of the rail is less than the portion with the declining upper edge whereby the weight of pins engaged on said declining edge portion will cause the pins to move along the rail and the leading pin of the row of pins on the rail to engage a side of a pin on the pin supporting member 37' of the slide and onto said pin supporting member when a pin is removed therefrom.

As stated, the recesses 27 in the clothes-pins are spaced a predetermined distance from the recesses 28 and means are provided to engage the body of the pin in the opening 32 in the table and support said pin in predetermined position with the pin recesses 28 disposed substantially in the plane of the top of the table. As shown in Figures 13, 14 and 23, this pin supporting means comprises a yoke member 47 slidably carried by a bracket 48 fixed on the table at the rear of the opening 32 therein with a part of the bracket extending forwardly over said portion of the table with the opening and having an opening 48' therein in line with the opening 32 and into which opening the shank of a pin is adapted to extend, the legs of the yoke member being slidably engaged in recesses 47' in a part extended laterally from the bracket 48, to the right as viewed in Figures 1 and 13, to have reciprocatory movement in a horizontal plane transversely of the bracket opening 48' and engage the recesses 27 in the shank of a clothes-pin engaged in said opening. The recesses 47' are disposed below and open to the laterally extending portions of a slideway of T form in cross section in said bracket in which a correspondingly formed slide 49 is slidable to which the yoke member 47 is connected to participate in the movement thereof by screws, as shown at 49' in Figure 14. The slide 49 is reciprocated in timed sequence with the operation of the slide 37 to releasably engage the legs of the yoke member in the recesses 27 in the shank of the clothes-pin engaged in the bracket opening 48' by the slide 37 and to move the legs of the yoke member out of engagement with said recesses to release the pin. To effect this movement of the yoke member 47 a plate 50 is slidably mounted in a slideway in the bracket 48 above the slide 49 to have movement transversely thereof and retained in the slideway by a second plate 51 mounted on the bracket 48 above said plate 50. The slide 49 is connected to the plate 50 to transmit the reciprocatory movements thereof to the slide 49 by a headed stud 52 having two diameters extended through and with the head thereof slidably engaging in an elongated slot 51' extending transversely of the plate 51, the portion of larger diameter of said stud engaging a bushing 53 (Figures 3 and 14) in a cam slot 50' in the plate 50, said cam slot having opposite end portions extending longitudinally of and adjacent the opposite sides of the plate and an intermediate connecting portion extending diagonally of the plate, as clearly shown in Figure 1, and the portion of reduced diameter of said stud having screw threaded connection with the slide 49. As the plate 50 is reciprocated the cam slot 50' is moved transversely of the stud 52 and imparting longitudinal movement to the slide 49 and yoke member 47 in one direction transversely of the plate 50 as said plate is moved in one direction, and by the movement of the plate 50 in the opposite direction the slide 49 with the yoke member 47 is moved in the opposite direction. To reciprocate the plate 50 a link 53 is connected at one end, as shown at 53', to the slide 50 and pivotally connected at the opposite end to one arm 54 of a bell crank lever mounted on the shaft 41, the other arm 54' of said lever carrying a roller 55 following a cam B mounted on the hub of the cam A (Figure 2) and participating with said cam in the rotation of the shaft 30.

To shape a length of wire to open or partial ring form and position the same with the intermediate portion engaging in a recess 28 of a clothes-pin supported by the yoke member 47 in the opening 32 in the table, die mechanism is provided including a fixed die member and a die member reciprocatory relative to said fixed die member toward and away from a side portion of the clothes-pin supported in the table opening 32 by the yoke member 47 at a right angle to the reciprocatory movement of said yoke member. As shown in Figures 6, 12, 20, 21 and 22, the fixed die comprises a block 56 substantially of rectangular shape in cross section mounted in the lower part of an opening 48ª in the bracket 40 (Figure 6) spaced from the top of the table with the end of the die mechanism projecting slightly therefrom and also spaced from the table. The end of said die member is provided with two forming die faces 56', 56'', the face 56'' being arranged in a lower plane than the die face 56'. The forming die faces are formed on the end of the member 56 by cutting a transverse recess in a corner at the end and the front side of said member, as shown at 56ª in Figure 6, the vertical face of which recess constitutes the front wall of the die faces and adapted for engagement of an intermediate portion of a predetermined length of wire W as it is shaped. The remaining portion of the die face 56' conforms to the cross sectional shape of the body of the die member 56. The die face 56'' is of less width than the die face 56' and the end walls arranged to extend at an obtuse angle to the front wall 56ª, as shown at 56ᵇ effected by undercutting the end of the die member 56.

The reciprocatory die is in the form of a slide or plate 57 mounted on the table to have longitudinal sliding movement in the plane of the fixed die member by gibs 58 secured on the table by screws and engaging over undercut portions extending longitudinally of the opposite sides of the slide. The slide or plate is arranged within the forward end thereof with superposed bending and shaping die faces 57', 57'' complemental to and arranged in the plane of the forming die faces 56', 56'' and the portion of the plate forwardly of said die faces being of a thickness slightly less than the space between the end of the die member 56 and top of the table. To reciprocate the slide or plate 57 toward and away from the shank of the clothes-pin projecting above the table relative to the fixed die member a lever 60 (Figures 1, 2, 4, 6 and 11) is pivotally supported at one end, as at 60' on a laterally projecting portion of a bracket 61 mounted on a pair of rods 62, 62' by a clamping plate 61' secured to the bracket by bolts, as shown in Figure 2. The lever 60 extends upwardly at the rear of the drive shaft 30 at the side of a cam C shown as constructed integral with the cam A (Figure 4) and pivotally connected at the opposite end to the bifurcated end of a link 63 and said link pivotally connected at the opposite end between ears extending upwardly from the

reciprocatory die member 57, as shown at 63'. The lever 60 is oscillated to transmit reciprocatory movement to the die plate 57 by a roller 60'' rotatably mounted on a stud fixed in and extending from the lever intermediate the ends thereof engaging cam groove D in the side of the cam C.

Means are provided to feed a predetermined length of wire, as from a reel (not shown) transversely of the end of the die face 57'' of the reciprocatory die member 57, and as shown comprises a slide 64 (Figures 1, 4, 8, 9 and 10) mounted on the table to have sliding movement toward and away from the reciprocatory die member at a right angle thereto. A pair of levers 66 pivotally mounted on the slide 64 are arranged with jaws 66' at one end disposed in opposed relation to each other and between which jaws the wire is engaged. The faces of the jaws are arranged eccentric to the pivotal support of the levers and are adapted to have movement toward and away from each other into and out of wire gripping positions by the oscillation of the levers 66. To transmit reciprocatory movement to the jaw carrying slide with the jaws and actuate the jaws the slide is connected to a head 67 by links 68 pivotally connected at one end to the end of the jaw levers 67 opposite the jaws and at the opposite ends to said head. The head 67 is carried by a stud pivotally mounted, as shown at 67' in Figure 9, on one end of one arm of a lever 69 extending transversely of the table and pivotally supported intermediate the ends on the table, as at 69'. The lever is oscillated and thereby the head and jaw carrying slide reciprocated by a roller rotatably carried at the end of the opposite arm of the lever engaging a cam groove E in the periphery of a drum 70 fixed on the drive shaft 30. The wire is guided to the lever jaws by engaging in the peripheral grooves of and passing between two rows of rollers 71, one row of rollers being rotatable on alined vertical axes to engage at one side of the wire, and the other row of rollers rotating on alined vertical axes spaced laterally of the first rollers and engaging the opposite side of the wire, as shown in Figures 1, 8 and 9. The rollers 71 also function to straighten the wire as it is drawn between said rollers. The wire fed by the lever jaws is guided to the reciprocatory die member in a groove in a block 72 fixed on the table. The feeding of the wire is limited by the end engaging the gib plate 58 for slidably mounting the reciprocatory die member at the left side, as viewed in Figure 1, on the table, as shown in Figure 17, and to cut a predetermined length from the wire substantially equal to the space between the reciprocatory die mounting gibs 58 the outer edge at the end of the die face 57'' and the one wall of the recess in the block 72, as shown at 72' in Figure 17, are adapted to co-operate in the movements of the reciprocatory die member to serve as cutters and sever the wire.

The die faces 57', 57'', as stated, are arranged in superposed planes and are in the form of recesses in the face of an end portion of the reciprocatory die member or slide 57. The end surfaces of the die face 57'' extend longitudinally of the slide at right angles to an intermediate face extending transversely of the slide, and the side faces of the die face 57' diverge outwardly at the same angle as the end walls 56b of the die face 56'' of the fixed die member from an intermediate portion of said die face 57' extending in the plane of the transverse face of the die face 57''.

The wire W is fed to position extending transversely of the reciprocatory die member between the gibs 58 in the plane and in front of the die face 57'', as shown in Figure 17. As the reciprocatory die member is moved toward the fixed die member 56 and shank of the clothes-pin P projecting above the table the reduced end portion and die face 57' will move below said portion of the wire and the die face 57'' is first brought into engagement with the wire, the corner at the front and side at the right of said die face cooperating with the corner at the end of a side wall of the recess in the block 72, as at 72' in Figure 17, to sever the wire, said severed length of wire engaging upon the die face 57' forward of the die face 57''. By the continued movement of the reciprocatory die 57 the severed length of wire is engaged by the die face 57'' with the wall 56a of the die face 56' and the opposite ends of the wire bent about the ends of said die face 56' to extend at a right angle to the body of the wire, as shown in Figures 19 and 20. During the return movement of the die 57 the wire with the ends bent at right angles is supported at said ends relative to the die face 56'' upon studs 73 (Figures 12, 20 and 21) fixed in and extending upwardly from the table at opposite sides of the fixed die member. The studs 73 during the reciprocatory movement of the die 57 engage recesses 57a extended into the end of said die member. The partially formed wire is ejected from the die face 56' onto the supporting studs 73. For this purpose a yoke shaped ejector 74 is provided (Figure 12), said ejector having a reduced portion 74' slidably engaging in a reduced portion of the opening in the bracket 48 in which the fixed die member 56 is mounted. The legs of the yoke member slidably engage at the opposite end of the die face 56' and the ejector is normally urged to position with the ends of said legs disposed within the die face 56' by a spring 75 seated at one end in a socket in the stem 74' of the ejector and the other end abutting the fixed die member. The ejector is actuated against the action of the spring 75 to eject the partially formed wire from the die onto the supporting studs 73 in timed sequence with the actuation of the reciprocatory die member 57 by the cam C. To actuate the ejector 74 by said cam an arm 76 fixed on one end of a shaft 76' journaled in brackets 76a fixed on the table engages a roller carried within a bifurcation at the end of the ejector stem 74', as shown at 74'' in Figure 6. An arm 76b on the opposite end of said shaft 76' is pivotally connected to one end of a link 77 extended downwardly through an opening in the table, the opposite end of the link being connected to an arm 78 fixed on a shaft 78' journaled in brackets 78a fixed to the under side of the table. An arm 78'' fixed on said shaft is urged, as by a spring, to cause a roller 78b carried by said arm to engage and follow the cam C.

Upon the successive movement of the reciprocatory die member 57 toward the fixed die member a successive length of wire is severed from the strand and shaped by the die face 57'' to conform to the die face 56'. Simultaneously with said movement of the reciprocatory die the die face 57' thereof operates to shape the wire the ends of which were bent in the previous movement of the reciprocatory die member to conform to the die face 56'' to open or partially formed ring shape with the end portions of the wire extending at obtuse angles relative to the intermediate portion thereof and conforming to the opposite end walls of the die face 56'' and

the bent ends converging inwardly, as shown in Figures 19 and 21. During the interim of the successive return movement and the successive forward movement of the reciprocatory die member 57 the ejector is actuated causing portions 74' projecting from the face of the ejector intermediate the legs and slidably engaging in openings in the fixed die member at the opposite sides of the die face 56'' to eject the formed wire from the die face 56'' onto the table relative to a gauge member 79 projecting upwardly through an opening in the table and simultaneously eject the wire the ends of which have been shaped to right angle form from the die face 56' onto the supporting studs 73. Upon the successive movement of the reciprocatory die toward the fixed die a successive length of wire is severed from the strand and the ends bent at right angles about the forming die face 56' by the shaping die 57'' and the wire supported upon the studs 73 is shaped by the die face 57' about the forming die face 56'' to open or partial ring form and the open or partially formed ring positioned upon the table relative to the die member 79 is moved by the projecting end portion 57b of the reciprocatory die member to position with the intermediate portion thereof engaging a recess 28 in the side of the clothes-pin opposed to the fixed die member, as shown in Figures 21 and 22. The gauge member 79 is arranged at the end of a stem 79' and slidably engaged in an opening or openings in the table, the stem being slidably mounted in a tubular portion of a bracket 80 fixed to the underside of the table with the tubular portion in register with a circular recess in the underside of the table, and the movement of said gauge to position above the table limited by an annular flange 79'' on the stem engaging the bottom of the recess, as shown in Figure 6. The stem 79' is urged upwardly to position with the gauge extending above the table by a spring 81 coiled about the stem with one end abutting the flange 79'' of the stem and the opposite end abutting a shoulder formed by an enlargement of the bore in the tubular portion of the bracket 80 in which the stem slidably engages. The gauge extends into the path of movement of the reciprocatory die member and means are provided to actuate the gauge to position below the top of the table away from the partially formed ring on the table and out of the path of movement of the reciprocatory die member. As shown, this means comprises a lever 82 pivotally supported intermediate the ends by lugs extended downwardly from the bracket 80, as at 80', one arm of the lever having a pin and slot connection 82' with the gauge stem 79' and the opposite end having a cam edge 82'' engaging a roller 83 above the axis of rotation thereof rotatably carried by ears extended downwardly from a bracket 84 fixed to the underside of the reciprocatory die member and slidably engaging in an elongated opening 84' in the table, as shown in Figure 6. As the reciprocatory die member is moved toward the projecting shank of the clothes-pin the roller 83 participating in said movement of the die member is caused to ride off from the cam edge 82' of the lever arm onto a raised portion thereof and thereby rock the lever to move the gauge carrying stem 79' against the action of the spring 82 and position the gauge below the top of the table. As the reciprocatory die member 57 approaches the end of its return movement the roller 83 is moved relative to the cam edge 82' of the lever and the lever is actuated by the spring 81 to position with the gauge extending above the table.

It will be obvious that upon each successive movement of the reciprocatory die member toward the shank of the clothes-pin projecting above the table that a successive length of wire is severed from the strand and the ends thereof shaped to right angle form about the die face 56', that a length of wire the ends of which have been bent to right angle form by the previous movement of the reciprocatory die member and supported upon the studs 73 is shaped by the die face 57' to conform to the die face 56'' to open ring form, and that an open or partially formed ring positioned on the table relative to the gauge 79 is moved to position with the intermediate portion engaging a recess or groove 28 in a side of the clothes-pin adjacent the crotch thereof engaged in the opening 32 in the table and the obtuse angle portions of the ring disposed relative to side portions of the clothes-pin disposed at right angles to the recess engaged by the intermediate portion of the ring.

During the return movement of the reciprocatory die member 57 means are actuated to bend the partially formed ring to final ring form encompassing or encircling the clothes-pin with the side portions of the ring engaging opposite portions of the clothes-pin and the bent ends of the ring engaging the recess in the pin opposite to the recess engaged by the intermediate portion of the ring and the ring clamped to the clothes-pin. As shown, this means comprises slides or plungers 85 slidably mounted on the table by gibs 85' engaging over portions of reduced thickness at the opposite sides of the plungers disposed at opposite side portions of the clothes-pin engaging in the opening 32 in the table at a right angle to the reciprocatory die member. The bent extremities of the partially formed ring as it is shaped to final ring form encompassing the clothes-pins are guided to position to engage the recess 28 in the clothes-pin opposite the recess engaged by the intermediate portion of the ring by providing angle recesses extended into the inner edge and end of the rear gibs 85' and a plate 86 interposed between the bracket 48 and the table and which also serves to space the end of the bracket carrying the fixed die member above the table. The slides or plungers 85 are reciprocated toward and away from the clothes-pin engaging opening 32 in the table by levers 87 pivotally supported intermediate the ends upon the table, as at 87'. One arm of each lever is connected to a slide by a roller 88 carried on the head of a stud 88' fixed in each slide engaging an opening in the levers, said openings in the levers being of a width equal to the diameter of the rollers and elongated in a direction longitudinally of the levers. The opposite arm of each lever 87 rotatably carries a roller, as at 87a, engaging cam grooves F in the periphery of drums 88 fixed on the drive shaft 30.

After the bending slides 85 have been actuated to shape the partially formed ring to final ring form encompassing the clothes-pin, the pin support 47 is actuated to pin releasing position and an ejector is actuated to eject the clothes-pin from the opening 32 in the table. The ejector, as shown in Figures 2 and 3, comprises a slide 89 slidably mounted in the slideway between the rails 36' constituting continuations of the side walls of the slideway 33' in the member 33 for the pin support 37' of the slide 37 for feeding and engaging clothes-pins in the table opening 32. The ejector slide 89 has a bifurcation at the

upper end adapted to be disposed below and at the ends of the legs of the clothes-pin in the slideway of the member **33** and normally assumes its lowermost position by gravity. The ejector slide **89** is actuated by a cam G on the drive shaft **30** operatively connected to the ejector slide by a roller rotatably carried on a stud fixed in and extending laterally from the ejector slide through a slot **33**^{d} in the plate **33**^{b} engaging a bifurcation, as at **90**, at one end of a lever **90'** pivotally supported on a stud shaft **91** mounted in the lateral extension of the bracket **61**, the other arm of the lever rotatably carrying a roller **93** normally urged into engagement with the cam G to follow the same by the weight of the ejector slide.

In Figure 26 there is shown in a diagrammatic manner the movement of the cams in one cycle of operations of the different mechanisms during one revolution of the drive or cam shaft **30**. The drive shaft and cams rotate in counterclockwise direction as indicated by the arrow. The concentric circles are representative of and have been given the reference characters indicating the cams A to G, inclusive, for actuating in timed sequence the slide **37** to feed and engage clothes-pins successively in the opening **32** in the table, actuating the pin supporting yoke **47** into and out of pin supporting position, actuating the ejector **74** for ejecting a partially formed ring from the die face **56'** relative to the die face **56''** and from the latter onto the table relative to a gauge **79**, actuate the reciprocatory die member **57** relative to the fixed die member **56**, actuate the cams **64**, **66** to feed a strand of wire relative to the reciprocatory die member **57**, actuate the slides for bending a partially formed ring to final ring form in encircling relation to a clothes-pin, and actuate the ejector **89** to eject a clothes-pin with a reinforcing ring applied thereto from the table **32**.

During the initial rotation of the cam shaft through an arc of substantially 25 degrees from a point of commencement indicated by the line O, and as indicated at *a*, the cam A actuates the clothes-pin feeding slide **37** to engage a clothes-pin in the opening **32** in the table T. During the rotation of the cam A through a successive arc of approximately 270 degrees, as indicated at *a'*, said cam functions to retain the clothes-pin feeding slide **37** in position to support the clothes-pin in the table opening **32**, and said cam in the further rotation thereof through a successive arc of approximately 25 degrees, indicated at 2^{a}, actuates said pin feeding slide downward to position to receive a pin thereon from the rail **44**, and remains in said position for the remaining 40 degrees of revolution of the cam, as indicated at a^{3}.

During the rotation of the cam B for actuating the pin supporting yoke **47** through an initial arc of approximately 25 degrees, as indicated at *b*, the mechanism actuated by said cam remains idle. Upon the termination of the rotation of the cam through said arc of 25 degrees said cam actuates the pin supporting yoke **47** to and retains it in pin supporting position during the rotation thereof through a successive arc of substantially 280 degrees, as indicated at *b'*, when the cam actuates said mechanism to move the yoke member out of clothes-pin supporting position and retains the yoke member in said position for the remaining 55 degrees of revolution of the cam through one revolution thereof, as indicated at b^{2}, and for approximately 25 degrees of the successive revolution of the cam.

The cam E for actuating the wire feeding means has an initial idle rotation through an arc of approximately 30 degrees, as indicated at *e*, the wire feeding means remaining in normal inoperative position as the pin feeding movement is imparted to the feeding slide by the cam A. During the rotation of said cam through a successive arc of approximately 60 degrees, as indicated at *e'*, the cam actuates said wire feeding means to feed the wire transversely of the reciprocatory die member **57** relative to the die **57''**, the feeding of the wire being simultaneous with the actuation of the pin support **47** to pin supporting position by the cam B. The cam E retains the wire feeding means in said position as it moves through a successive arc of approximately 35 degrees, as indicated at e^{2}, when the cam imparts return movement to and retains the wire feeding mechanism in normal position during the successive rotation of the cam through the remaining arc of approximately 235 degrees of said revolution of the cam, as indicated at e^{3}, and approximately through an arc of substantially 30 degrees of the successive revolution of the cam.

The cam D for actuating the reciprocatory die member **57** has an initial idle rotation through an arc of approximately 60 degrees, as indicated at *d*, during which time the cam A actuates the pin feeding slide **37** to engage a pin in the table opening **32**, the cam B has actuated the pin support **47** to pin supporting position and the cam E has actuated the wire feeding means to feed the wire relative to the reciprocatory die member **57**. During the rotation of the cam D through a successive arc of approximately 65 degrees, as indicated at *d'*, the cam actuates the reciprocatory die operating means to move the reciprocatory die relative to the fixed die member **56** and the shank of the clothes-pin projecting above the table, said die member **57** during said movement first severing a predetermined length from the wire and in successive sequence moving the severed wire relative to the die face **56'** of the fixed die **56** shaping the ends of the wire to right angle form and shaping a length of wire with the bent ends relative to the die face **56''** to open or partial ring form and position a length of wire previously formed to open ring form with the intermediate portion engaging the side of the clothes-pin engaged in the opening **32**, and the die is retained in said position during the rotation thereof through a successive arc of approximately 35 degrees, as indicated at d^{2}, when the cam during the rotation thereof through a successive arc of approximately 25 degrees, as indicated at d^{3}, actuates the reciprocatory die operating means to impart return movement to the reciprocatory die and retains said die in said position during the rotation of said cam through the successive remaining arc of said revolution of the cam of approximately 175 degrees, as indicated at d^{4}, and for rotation of the cam through an arc of approximately 60 degrees of the successive revolution of the cam.

The cam C for actuating the ejector **74** for ejecting a partially formed ring from the die face **56'** onto the supports **73** relative to the die face **56''** and from the latter onto the table relative to the gauge **79** has an idle rotation through an arc of approximately 315 degrees, as indicated at *c*, or during the period of actuation of the pin feeding means by the cam A to engage a pin in the

table opening **32**, the actuation of the pin support **47** to pin supporting position by the cam E and the actuation of the die member **57** relative to the fixed die member **56** by the cam D. During the rotation of said cam C through a successive arc of 30 degrees, as indicated at *c'*, said cam actuates the ejector **74** to eject the partially formed rings from the die faces **56'**, **56''** and imparts return movement thereto, and the cam has an idle rotation through the remaining successive arc of 15 degrees, as at c^2, and the rotation thereof through an arc of substantially 315 degrees of the successive revolution of the cam.

The cams F for actuating the slides **85** for bending to final ring form a partially formed ring positioned by the reciprocatory die **57** relative to the shank of the clothes-pin projecting from the table opening **32** has an initial idle rotation, as indicated at *f*, through an arc of approximately 125 degrees and during the engaging of a pin in the table opening **38**, the actuation of the pin support **47** to pin supporting position, the actuation of the wire feeding means and actuation of the reciprocatory die relative to the fixed die **56** when the cams F during the successive rotation thereof through an arc of approximately 35 degrees, as indicated at *f'*, actuates the slide operating levers **87** to impart bending and return movements to said slides **85**, and has an idle movement during the successive rotation of said cam through the remaining arc of approximately 200 degrees of said revolution of the cam, as indicated at f^2, and for the rotation thereof through 125 degrees of the successive revolution of the cam.

The cam G for actuating the ejector **89** for ejecting a clothes-pin with a reinforcing ring applied thereto from the opening **32** in the table has an initial idle movement through an arc of approximately 305 degrees, as indicated at *g*, when said cam during the rotation thereof through the remaining arc of 55 degrees of said revolution of the cam, as indicated at *g'*, actuates the lever **90** to impart clothes-pin ejecting movement to the ejector and to permit the ejector to return to normal position.

It will be obvious that various modifications may be made in the construction and arrangement of the parts without departing from the scope of the invention.

Having described my invention, I claim:

1. In a machine for applying reinforcing bands to clothes-pins, a support having an opening therein, means to support a clothes-pin in the opening in said support with the body of the pin projecting to predetermined position from said opening, means to feed a metallic strand to extend transversely of a side portion of the pin adjacent the crotch, die mechanism operative in successive sequence to sever a predetermined length from said metallic strand, shape said severed portion to open ring form partially conforming to the cross sectional shape of the pin and position the same with the portion midway the ends engaging the side of the pin and the end portions extending partly about the pin, and means operative to apply pressure to and bend the end portions to final ring form encompassing the pin.

2. In a machine for applying reinforcing rings to clothes-pins, a table having an opening therein, a member arranged with a slideway in the side and extending longitudinally thereof extended downwardly from the table with the slideway in alinement with the opening therein and adapted for the engagement of a clothes-pin sidewise therein, a slide reciprocatory in the slideway in said member adapted to receive thereon a pin engaged in the slideway, means to actuate said slide to project a clothes-pin thereon through the table opening to position with the crotch of the pin disposed substantially in the plane of the table, and means mounted on the table at the side of and movable toward and away from the table opening operative in successive sequence to shape a metallic strip to open ring form, position the same in engagement with and to partially encompass the body of the pin adjacent the crotch, and bend the ends toward each other about the body of the pin.

3. In a machine for applying reinforcing rings to clothes-pins, a table having an opening therein, supported below the table to have reciprocatory movement in the plane of the table opening adapted to receive a clothes-pin thereon and project the body of the pin through said opening to extend above the table, means reciprocatory toward and away from the table opening adapted to engage the projecting body of the pin and support the pin with the crotch thereof in predetermined position relative to the top of the table, die mechanism mounted on the table at the side of the body of the pin including a member movable toward and away from the table and another member reciprocatory toward and away from the table opening relative to and arranged to cooperate with the first die member to shape a metallic strand to partial ring form and position the same with the portion midway the ends engaging the body of the pin adjacent the crotch and the end portions partly disposed about the body of the pin, and means mounted on the table to have movement toward and away from the table opening in a plane at a right angle to the movement of the reciprocatory die member operative to apply pressure to and bend the end of the partially formed ring to ring form around the body of the pin adjacent the crotch.

4. In a machine for applying reinforcing rings to clothes-pins having a body of rectangular form in cross section arranged with recesses spaced longitudinally of and extending transversely of opposite sides of the body of the pin and the lower recesses disposed adjacent the crotch of the pin, a table having an opening therein, means to engage a clothes-pin in said opening with the body projecting above the table, means reciprocatory transversely of opposite sides of the projecting body of the pin adapted to engage the upper recesses therein and support the pin with the lower recesses disposed substantially in the plane of the table, die mechanism including a member reciprocatory toward and away from the body projecting above the table operative to shape a metallic strand to open ring form and position the same with the intermediate portion engaging a lower recess in the body of the pin and the opposite ends disposed at opposite side portions of the body of the pin, and means reciprocatory in a plane at a right angle to the movement of said reciprocatory member of the die mechanism operative to bend said end portions to final ring form around the body of the pin.

5. In a machine for applying reinforcing rings to clothes-pins, a table having an opening therein, means to engage and support a clothes-pin in said opening with the body of the pin projecting above the table, a forming die supported in superposed relation to the table at the side of the pin, a bending die complemental to the form-

ing die reciprocatory toward and away from the projecting body of the pin relative to the forming die, means for positioning a length of wire transversely of said bending die, and said bending die adapted to co-operate with the forming die to shape said wire to open ring form and position the same with the intermediate portion engaging the side of the body of the pin adjacent the crotch and the end portions disposed at opposite side portions of the pin, and means mounted on the table to have movement toward and away from the projecting body of the pin operative to bend said end portions of the ring around the pin.

6. In a machine for applying reinforcing rings to wooden clothes-pins having recesses predeterminedly spaced from each other longitudinally of and extending transversely of opposite sides of the body of the pin and the lower recesses disposed adjacent the crotch of the pin, a table having an opening therein, a slide below and reciprocatory toward and away from the table adapted to engage a pin in said opening with the body of the pin projecting above the table, a support mounted on the table and reciprocatory transversely of opposite sides of the body of the pin adapted in one position thereof to engage the upper recesses in and support the pin in position with the lower recesses in predetermined relation to the top of the table, die mechanism at a side of the pin with the recesses including a fixed die member and a die member reciprocatory toward and away from and co-operating with the fixed die to bend a length of wire to partial ring form and position the intermediate portion thereof in engagement with a pin recess adjacent the crotch and the end portions disposed at opposite side portions of the pin, and members reciprocatory toward and away from opposite side portions of the pin at a right angle to the reciprocatory die member operative to bend the end portions of the partially formed ring to encompass the pin with the ends engaging in the recess adjacent the crotch opposite the recess engaged by the intermediate portion of the ring, and means operative to eject said pin with the reinforcing ring applied thereto from the opening in the table.

7. In a machine for applying reinforcing rings to wooden clothes-pins, a table having an opening therein, means to engage and support a pin in said opening with the body projecting above and the crotch of the pin disposed in predetermined position relative to the top of the table, die mechanism including a fixed member spaced above the table at the side of the projecting body of the pin arranged at the end with forming dies extending in different planes parallel of the table, and a member reciprocatory below said fixed die member toward and away from the projecting end of the pin arranged with bending dies complemental to and disposed in the planes of the forming dies of said fixed member, means to position a length of wire transversely of the dies of said reciprocatory member adapted by the successive movements of the reciprocatory member relative to the fixed die member to co-operate with the forming dies to first bend the opposite end portions of the wire at right angles to the body of the wire, then bend the wire to open ring form with the portions within said right angle end portions extending at obtuse angles to the intermediate portion thereof, and then position the ring with the portion intermediate the obtuse angle portions engaging the side of the pin and said angle portions disposed relative to opposite side portions of the pin, and means movable toward and away from opposite side portions of the pin at right angles to the reciprocatory member operative to bend the obtuse angle portions to final ring form encompassing the body of the pin adjacent the crotch and clamp the ring to the pin.

8. In means for applying reinforcing rings to clothes-pins as claimed in claim 7, lugs extended upwardly from the table at opposite sides of the fixed die member adapted to engage slots in the reciprocatory die member in the reciprocatory movements thereof, means operative to eject the wire with the bent ends from the one forming face of the fixed die member onto said lugs and supported thereby in the plane of the other forming and bending die faces of the fixed and reciprocatory die members, and said means operative to eject the partially formed ring from said latter forming face of the fixed die member onto the table in the path of movement of and adapted to be moved by the reciprocatory die member to position with the intermediate portion engaging the side of the pin.

9. A machine for applying reinforcing rings to clothes-pins as claimed in claim 7, wherein the means to bend the obtuse angle portions of the partially formed ring to final ring form encompassing the pin, comprises slides slidably mounted on the table at opposite side portions of the pin, and means to reciprocate said slides toward and away from the pin.

10. In a machine for applying reinforcing rings to clothes-pins as claimed in claim 7, a gauge operative through openings in the table in opposed relation to the fixed die member and normally urged to project above the table in the path of movement of the reciprocatory die member, and means to eject the partially formed ring member from the fixed die member and position the ring relative to said gauge, and means actuated by the reciprocatory die member operative to move said gauge to position below the table out of the path of movement of said die member as it is moved toward the pin.

11. In a machine for applying reinforcing rings to wooden clothes-pins, a table having an opening therein, means to engage and support a pin in said opening with the body projecting above and the crotch of the pin disposed in predetermined position relative to the top of the table, die mechanism including a fixed member spaced above the table at the side of the projecting body of the pin arranged at the end with forming dies extending in different planes parallel of the table, and a member reciprocatory below said fixed die member toward and away from the projecting end of the pin arranged with bending dies complemental to and disposed in the planes of the forming dies of said fixed member, means to feed a wire strand transversely of the upper bending die of the reciprocatory die member, a fixed cutter at the side of the reciprocatory die member, a cutter associated with the reciprocatory die member adapted by the movement of the die to co-operate with said fixed cutter to sever a predetermined length of wire from said strand, and said bending dies by the successive movements of the reciprocatory member toward the pin being operative to move the length of wire relative to the upper die of the fixed member and bend the ends to extend at a right angle to the body of the wire, bend the wire to open ring form with the portions of said bent ends extend-

ing at obtuse angles to a portion intermediate thereof, and then move the open ring member to position with the portion intermediate the obtuse angle portions engaged at the side of the pin, means movable toward and away from opposite side portions of the pin at right angles to the reciprocatory die member operative to bend the obtuse angle portions of the open ring member to final ring form encompassing the pin adjacent the crotch and clamp the ring to the pin, and means operative to eject the pin with the ring clamped thereto from the opening in the table.

12. In a machine for applying reinforcing rings to clothes-pins as claimed in claim 11, wherein the means to feed a wire strand comprises a head reciprocatory toward and away from the reciprocatory die member, a slide, a pair of jaws pivotally mounted on the slide, means to guide the wire between said jaws and from the jaws to the reciprocatory die member, a pair of links pivotally connected at one end to the jaws and connected at the opposite ends to said head and connecting the slide to the head, and said links by the movement of the head toward the reciprocatory die member adapted to actuate the jaws into gripping engagement with the wire and impart wire feeding movement to the slide with the jaws, and the links by the return movement of the head actuating the jaws out of wire gripping position and imparting return movement to the slide with the jaws.

13. In a machine for applying reinforcing rings to wooden clothes-pins, a table having an opening therein, a member reciprocatory in a plane transversely of said opening adapted to support a pin engaged in said opening with the crotch of the pin in predetermined position relative to the top of the table, means slidably mounted on the table to have movement toward and away from a pin engaged in the table opening operative to form a predetermined length of wire to ring form encompassing the pin adjacent the crotch supported by said pin supporting member, and means to feed the pins to said pin supporting member, comprising a slide supported below the table to have reciprocatory movement toward and away from the table relative to the opening and adapted to receive a clothes-pin thereon and engage said pin in the table opening with the body of the pin projecting above the table in position to be engaged by said supporting member, and means to reciprocate said slide in timed sequence with the operation of said pin supporting member and ring forming means.

14. In a machine for applying reinforcing rings to wooden clothes-pins, a table having an opening therein adapted for the engagement and feeding of a clothes-pin therethrough, a member spaced above the table reciprocatory in a plane transverse of and relative to said opening in the table operative to releasably engage the projecting body of a pin engaged in said opening and support the pin with the crotch of the pin in predetermined position relative to the top of the table, means slidably mounted on the table to have movement toward and away from a pin engaged in the table opening operative to form a predetermined length of wire to ring form about the pin adjacent the crotch supported by said pin support, a member arranged with a slideway in the side and extending longitudinally thereof mounted below the slideway opening at the end to the opening in the table, a slide in the slideway of said member reciprocatory toward and away from the table, and means to feed clothes-pins into the side of the slideway onto said slide, and said slide by the movement thereof toward the table adapted to engage said pin in the opening in the table with the body of the pin projecting above the table in position to be engaged by the pin supporting member.

15. In a machine for applying reinforcing rings to clothes-pins as claimed in claim 14, a member slidable in the slideway of the member mounted below the table adapted to engage the legs of the clothes-pin below the slide in the slideway and operative in timed sequence with the pin releasing movement of the pin supporting member to eject the pin with the reinforcing ring applied thereto from the opening in the table.

16. A machine for applying reinforcing rings to clothes-pins as claimed in claim 14, wherein the means to feed clothes-pins onto the slide in the slideway of the member mounted below the table, comprises a rail adapted to be straddled by the pins, said rail having a declining portion extending through an opening in the table and merging with a horizontal portion extending parallelly of and in predetermined spaced relation below the table and terminating at the side of the slideway, and a recess in the bottom of the table extending parallelly of the horizontal portion of said rail adapted for the slidable engagement of the heads of and guiding the pins.

17. In a machine for applying reinforcing rings to wooden clothes-pins, means to support a clothes-pin in predetermined position, die mechanism disposed at the side of said pin including a fixed die member and a die member reciprocatory in a plane transversely of the pin toward and away from the fixed die member, means operative alternately with the movement of the reciprocatory die member toward the fixed die member to feed a length of wire transversely of said reciprocatory die member, said reciprocatory die member by the movement thereof toward the fixed die member co-ooperating with the fixed die member to bend the ends of said wire at right angles to the body of the wire, by the successive movement thereof toward the fixed die member bend the end portions of the wire with the ends bent at right angles to extend at obtuse angles to an intermediate portion of the wire and bend the ends of a successive length of wire fed to said reciprocatory die member to extend at right angles to the body of the wire, and by the successive movement of the reciprocatory die member toward the fixed die member position the wire with the portion intermediate the obtuse angle portions engaging the side of the pin, and simultaneously bend the end portions of the wire with the ends bent at right angles to extend at obtuse angles to a portion intermediate said obtuse angle portions and bend the ends of a successive length of wire fed to said reciprocatory die member to extend at right angles to the body of the wire, and said reciprocatory die member in the successive movements thereof simultaneously bending the ends of a length of wire fed thereto at right angles to the body of the wire, bend the end portions of the wire having the ends bent at right angles to extend at obtuse angles to a portion intermediate said obtuse angle portions and position a wire the end portions of which have been bent to extend at obtuse angles with the portion intermediate said obtuse angle portions engaging the side of the pin, and means reciprocatory in a plane transversely to the movement of the reciprocatory die member toward and

away from opposite side portions of the pin supported by the pin supporting means operative to bend the obtuse angle portions of a wire positioned relative thereto to ring form encompassing the pin.

18. In a machine for applying reinforcing bands to clothes-pins, a support having an opening therein, means to support a clothes-pin in the opening in the support with the body projecting to predetermined position from the opening, means operative to position a reinforcing band preformed to open ring form partially conforming to the cross sectional shape of the body of the pin with the portion midway the ends engaging a side portion of the body of the pin adjacent the crotch and the opposite end portions extending partly about the pin, and means operative while holding the reinforcing band in said position to apply pressure to and bend the end portions of said reinforcing band toward each other about the body of the pin with the ends substantially in abutting relation.

19. In a machine for applying reinforcing bands to clothes-pins, a support having an opening therein, means to support a clothes-pin in the opening in said support with the body projecting to predetermined position from the opening, means operative to preform a metallic strand to open ring form partially conforming to the cross sectional shape of the pin and position the same with the portion midway the ends in engagement with a side portion of the pin adjacent the crotch and the end portions extending partly around the pin and adapted to hold the reinforcing member in said position, and means operative to apply pressure to and bending toward each other the ends of the band held in engagement with the pin to encompassing relation to the pin.

20. A machine for applying reinforcing bands to clothes-pins, a support having an opening therein, means to support a clothes-pin in the opening in said support with the body projecting to predetermined position therefrom, means to feed a metallic strand to extend transversely of a side portion of the clothes-pin, and means operative in successive sequence to sever a predetermined length from the strand, shape said severed portion of the strand to ring form partially conforming to the cross sectional shape of the body of the pin, position said band to partially embrace the body of the pin adjacent the crotch, and then bend the ends of said reinforcing band toward each other in encompassing relation to the body of the pin.

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