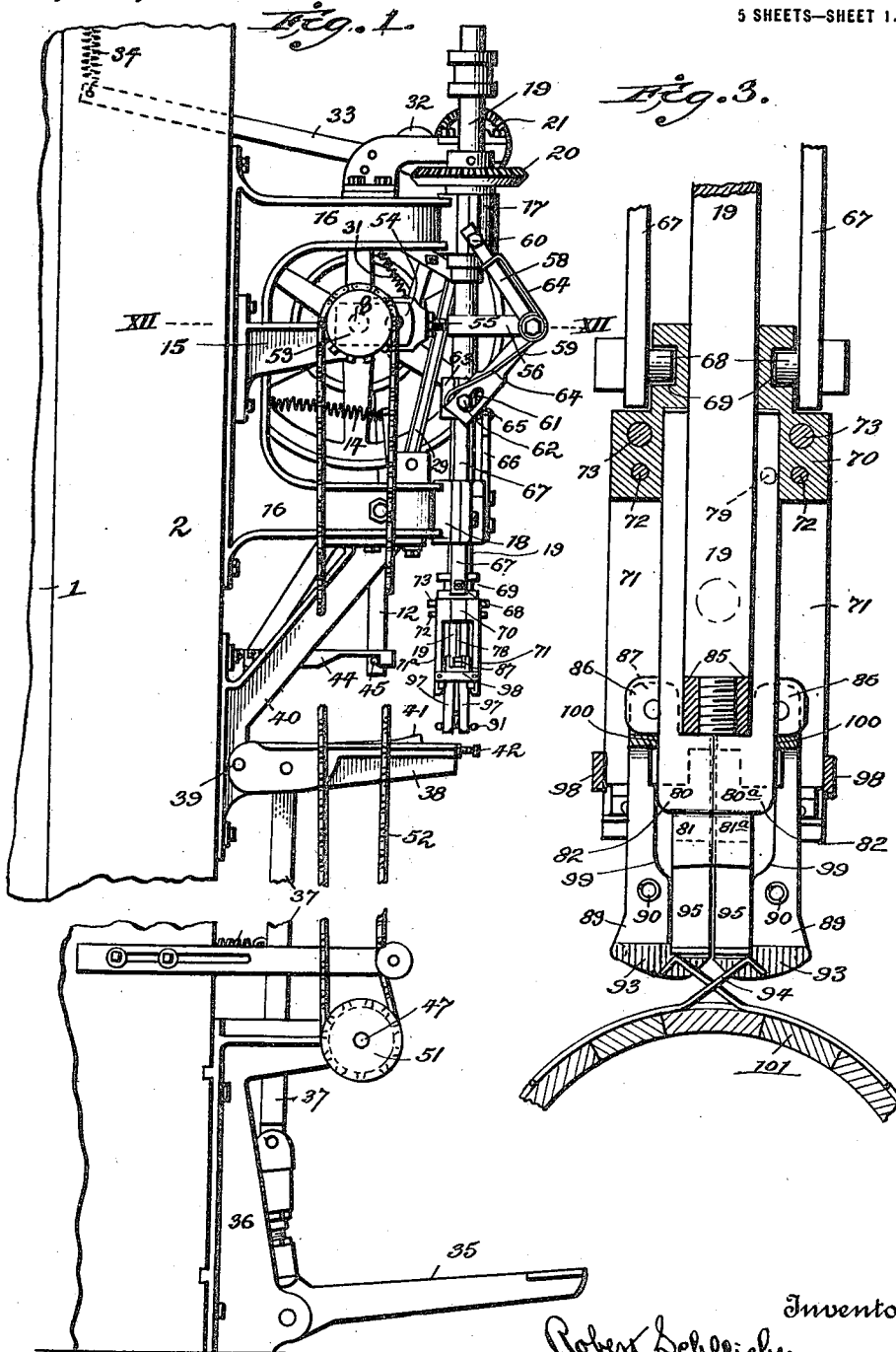


R. SCHLEICHER.
MACHINE FOR SECURING WIRE HOOPS UPON PAILS AND LIKE STRUCTURES.
APPLICATION FILED JAN. 11, 1918.

1,289,554.

Patented Dec. 31, 1918.
5 SHEETS—SHEET 1.



Inventor:
Robert Schleicher,
Dodge and Sons, Attorneys

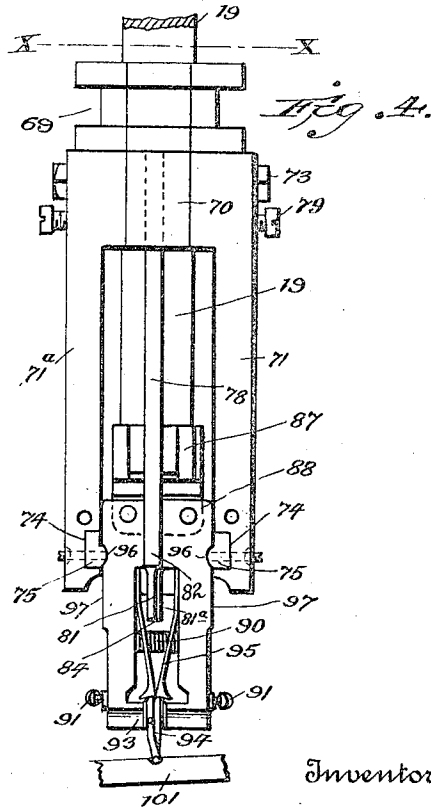
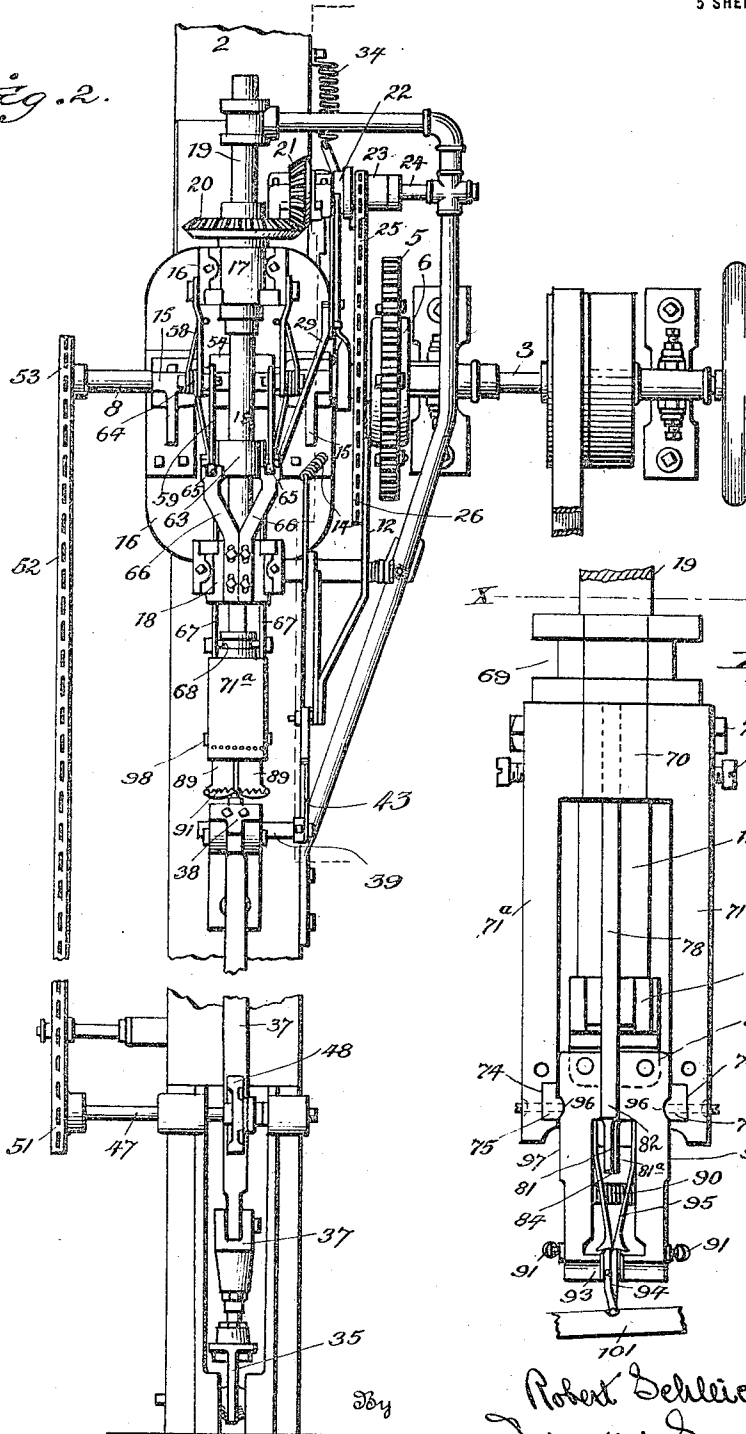
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Fig. 2.



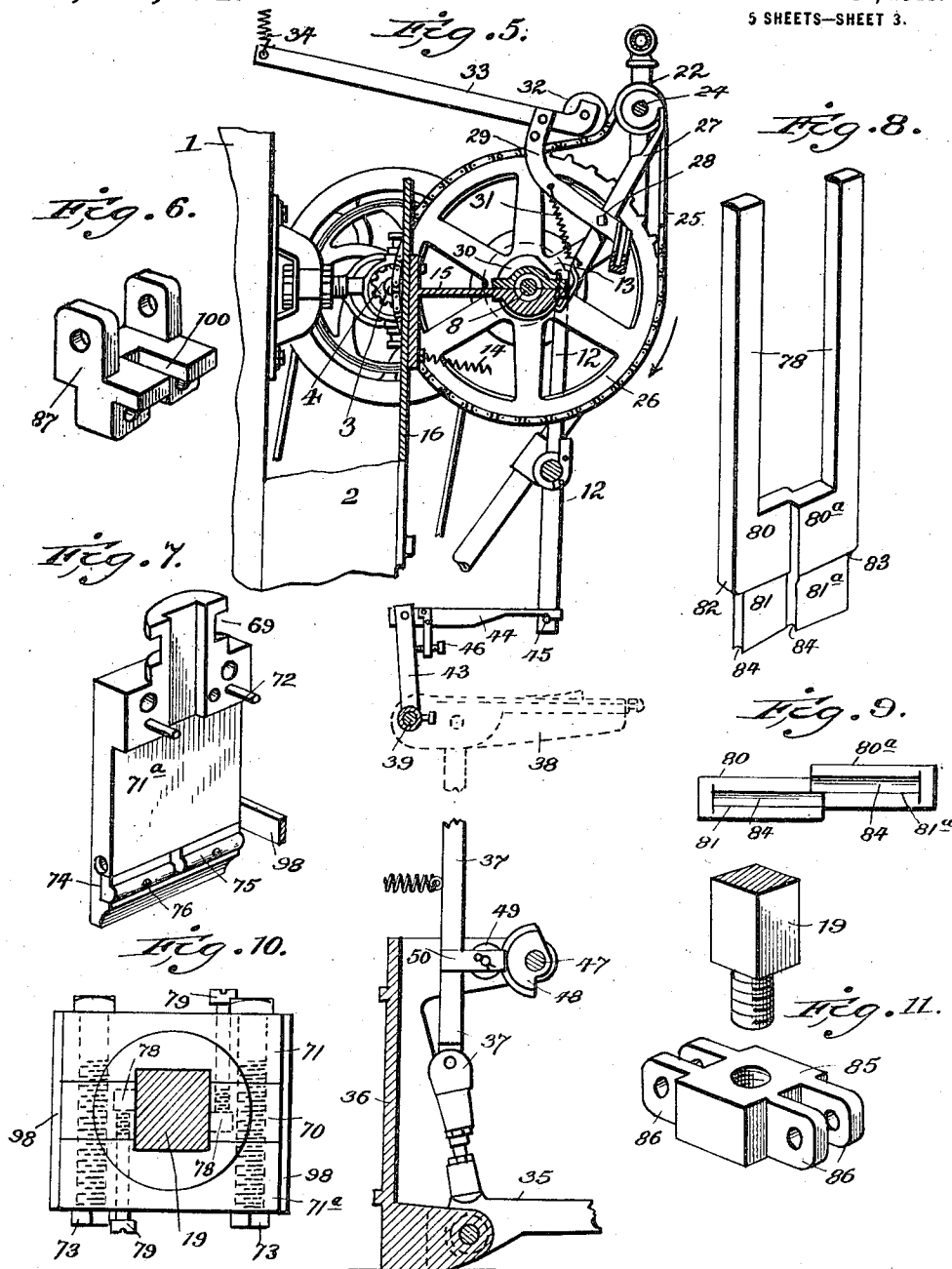
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5 SHEETS—SHEET 3.



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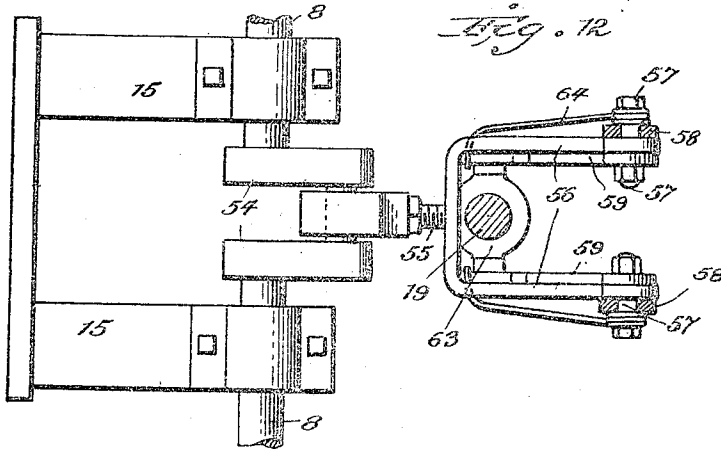


Fig. 13.

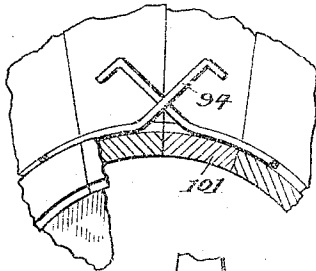


Fig. 14.

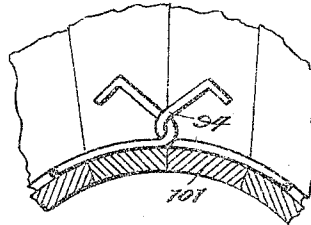


Fig. 20.

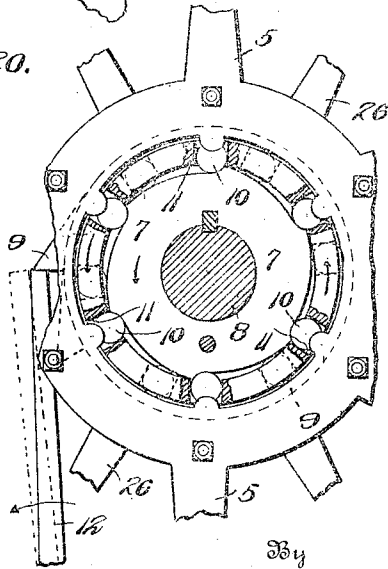
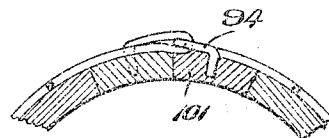


Fig. 15.



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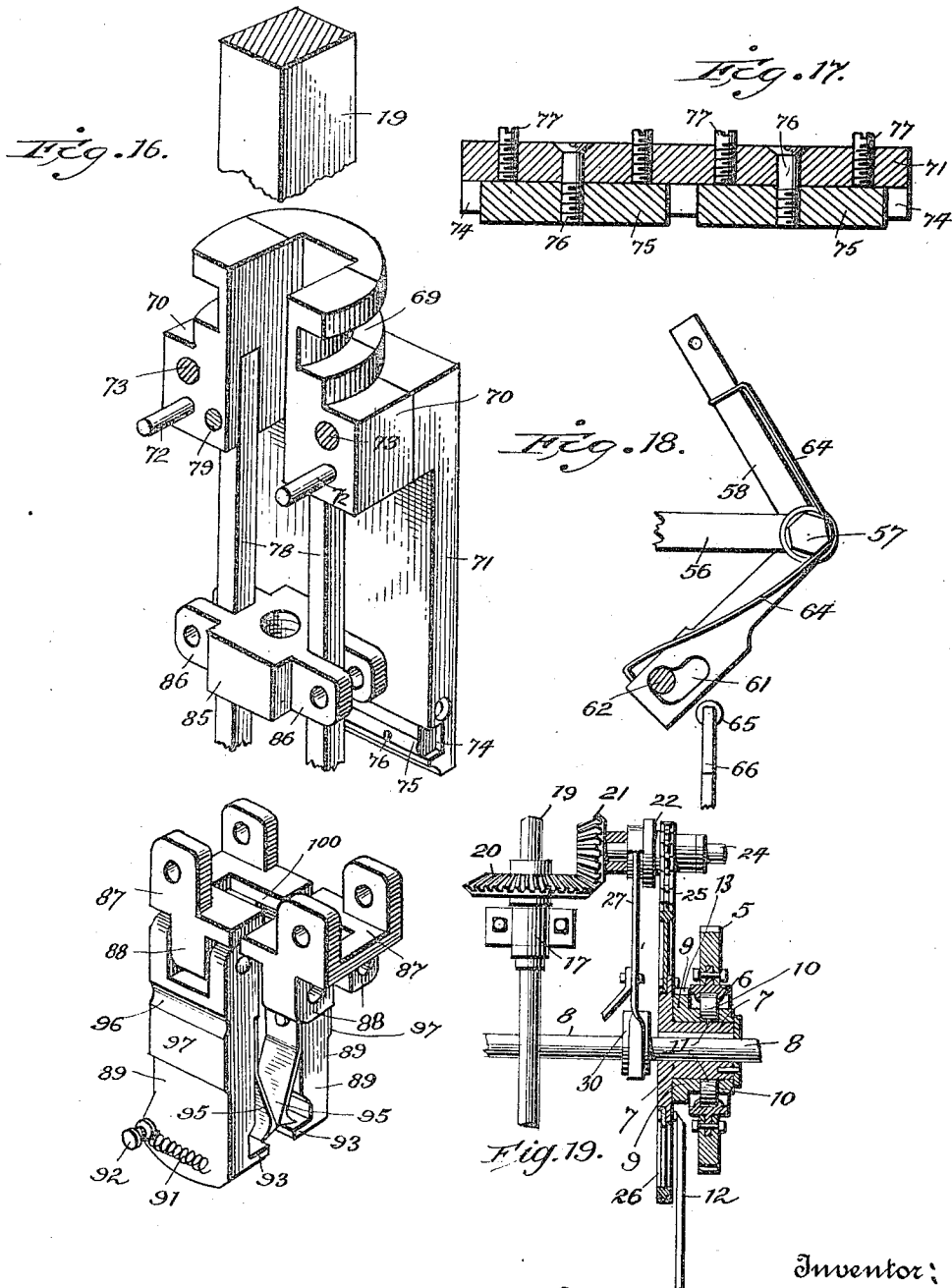
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APPLICATION FILED JAN. 11, 1918.

1,289,554.

Patented Dec. 31, 1918.

5 SHEETS—SHEET 5.



Inventor:

Robert Schleicher,
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UNITED STATES PATENT OFFICE.

ROBERT SCHLEICHER, OF LOUISVILLE, KENTUCKY, ASSIGNOR TO MENGEL BOX COMPANY, OF LOUISVILLE, KENTUCKY, A CORPORATION OF NEW JERSEY.

MACHINE FOR SECURING WIRE HOOPS UPON PAILS AND LIKE STRUCTURES.

1,289,554.

Specification of Letters Patent.

Patented Dec. 31, 1918.

Application filed January 11, 1918. Serial No. 211,363.

To all whom it may concern:

Be it known that I, ROBERT SCHLEICHER, a citizen of the United States, residing at Louisville, in the county of Jefferson and State of Kentucky, have invented a certain new and useful Improvement in Machines for Securing Wire Hoops Upon Pails and like Structures, of which the following is a specification.

This invention pertains to an improved machine for securing wire hoops upon pails and like structures.

The main object of the invention is to provide a simple and effective machine which will place the hoop under proper tension, twist the same adjacent the ends, and then drive such ends into the body of the pail.

A further object resides in the provision of means whereby such operations will be automatically effected once the pail, with the hoop loosely placed thereon, is properly positioned and the machine set in operation by the depression of a pedal (or in other similar manner) by the operator; the hoop and pail being by the depression of the treadle brought into operative relation with the tensioning, twisting and driving mechanisms, which mechanisms are, by the same operation or movement, set in action.

The hoops are initially cut and brought to the proper curvature, the outwardly-bent ends crossing each other at substantially right angles, and with their extremities turned or bent inwardly to form driving points.

Inasmuch as the upwardly or outwardly extending ends will not, in most instances, lie at the same distance from the pail, I provide means for forcing the high end down to a slight extent so as to insure the ends beings brought into proper relation to the pincer jaws which grasp said ends, drawing them past each other to tension the hoop, and finally twisting them, after which the ends are driven into the pail body. The mechanism hereinafter set forth in detail effects all of these operations automatically.

In the drawings:

Figure 1 is a side elevation of the machine;

Fig. 2 a front elevation thereof;

Fig. 3 a vertical sectional view, on an enlarged scale, showing the tensioning and twisting head, in part, and the driving hammer;

Fig. 4 a side elevation of such parts;

Fig. 5 a vertical sectional elevation showing the connections between the treadle and the operating mechanism (in part), the anvil or supporting arm for the pail being shown in dotted lines;

Fig. 6 a detail perspective view of one of the supporting elements for two of the pincer jaws;

Fig. 7 a similar view of one of the slides employed to force such jaws together into clamping relation with the hoop ends;

Fig. 8 a perspective view of the hammer or driver;

Fig. 9 a bottom plan view of the same;

Fig. 10 a horizontal sectional view, on the line X—X of Fig. 4;

Fig. 11 a perspective view of the head to which the pincer jaw supporting elements (Fig. 6) are attached, and a portion of the actuating bar therefor;

Fig. 12 a horizontal sectional view on the line XII—XII of Fig. 1, showing the crank and allied parts employed to impart vertical movement to the pincer mechanism;

Figs. 13, 14 and 15 views showing the hoop ends in their initial and driven positions, respectively;

Fig. 16 a detail sectional perspective view of various parts of the twister head or pincer mechanism, the hammer being broken away, one pair of pincer jaws being omitted as well as one of the pincer-actuating slides;

Fig. 17 a transverse sectional view through the adjustable pressure elements carried by such slide;

Fig. 18 a detail elevation of means employed to control the pause in the vertical movement of the twisting head;

Fig. 19 a detail sectional view of certain portions of the driving mechanisms; and Fig. 20 a side elevation, partly in section, of the clutch mechanism.

The machine in the embodiment shown is supported by a column 1 having suitable blocks 2 secured thereto to bring the parts to their proper relative positions though, of course, a special column may be provided.

The main driving shaft is denoted by 3, Figs. 2 and 5, said shaft having secured thereto a pinion 4 which meshes with a large gear 5 which is secured to a ring-shaped member 6, Fig. 19, of a Gramme clutch. The hub 7 of said clutch is secured to a shaft 8, and an actuating member 9 is

rotatably mounted on the hub, said member being notched to receive a series of rollers 10 interposed between cam faces 11 formed on the hub and the inner face or ring 6. A spring (not shown) tends normally to hold the actuating member 9 in such position as to cause the rollers to interlock the hub 7 and the ring and cause the gear 5 to rotate. Any form of clutch may, of course, be employed. Normally the clutch is held in its unlocked position by a control lever or arm 12 which contacts with a shoulder 13 on member 9, the lever being normally drawn into engagement therewith by a spring 14. Shaft 8 is journaled in a pair of brackets 15, Figs. 1 and 12, and through its periodic movement effects the operation of the various elements of the machine.

Secured to the supporting column, or more specifically to the blocks 2, is a frame or casting 16, provided with vertically-disposed bearings 17 and 18 for a shaft 19, mounted to rotate therein. The upper portion of this shaft is round, while the lower part thereof is squared and forms a guide upon which the slide that carries the twisting head and driver or hammer is mounted.

To the upper portion of the shaft there is secured a bevel gear 20, which meshes with a similar gear 21, said latter gear being connected to the idling element of a second Gramme clutch, denoted generally by 22, Figs. 2 and 5. The actuating member 23 of said clutch, mounted on a shaft 24, carries a sprocket wheel about which passes a sprocket chain 25, said chain likewise passing about a large sprocket wheel 26. Said wheel 26 is secured to and rotates with hub 7 of the first-mentioned Gramme clutch.

The control lever 27 for the clutch 22 is fulcrumed at 28 on a fixed bracket or arm 29, the lower end of said lever coacting with a cam 30 secured to shaft 8, Fig. 5. A spring 31 draws the lower end into operative relation with the cam. It may be here stated that the cam does not allow the clutch 22 to come into operation until the twisting operation of the hoop ends is to be effected or until the operating head has moved downwardly to such an extent as to bring the bent ends of the hoop into the same plane or at the same distance from the pail body.

A wheel or roller 32 bears upon sprocket chain 25, said wheel being mounted upon a lever 33, fulcrumed upon bracket 29. A spring 34 acts to elevate the rear end of the lever and to press roller 32 against the chain and to thereby take up slack and cause the chain to closely hug the small sprocket about which it passes.

The control pedal, denoted by 35, is fulcrumed upon a suitable bracket or casting 36, and a toggle-lever or link 37 is interposed between the same and an anvil 38. Said anvil is secured at its rear end to a

shaft 39, journaled in a fixed bracket 40, the anvil being provided in its upper face with a retreating stop 41 and at its forward end with adjustable stops 42. Said retreating stop 41 is merely a spring actuated member adapted to be thrown upwardly into the position shown in Fig. 1 by the spring and which, of course, permits it to be readily depressed when the bucket or pail is placed on top of the same and pressed down. Fixed to and extending upwardly from shaft 39 is a lever 43, and pivoted to the upper end of the lever and projecting forwardly therefrom is a latch-bar 44, which overlies and coöperates with a pin 45 mounted in the lower end of the control lever 12. Depression of the pedal will raise the anvil, and as a consequence rotate shaft 39, causing the latch bar 44 to swing the control lever and release its upper end from shoulder 13 of the main Gramme clutch, permitting said clutch to come into immediate operation. An adjustable stop 46, carried by bar 44 and coacting with lever 43, determines the moment of contact between the latch bar and pin 45.

Mounted in bracket 36 is a shaft 47, carrying a cam 48, said cam coacting with a roller 49 mounted upon an arm 50 secured to and extending outwardly from lever 37. A sprocket-wheel 51, Fig. 1, is secured to shaft 47 and a chain 52 passes about the wheel and a similar wheel 53 secured to shaft 8. Inasmuch as shaft 8 has an intermittent motion a similar motion is imparted to shaft 47 and the cam 48 secured thereto. The purpose of the cam is to limit the initial upward movement of the anvil 38 and to bring it to the height required during the twisting operation of the wire and then, later, to allow it to be raised a fraction higher and to press the ends of the wire hoop firmly against or slightly into the bucket just prior to the actuation of the hammer or driver. The rotation of cam 48 permits such action, the operator merely pressing down on the pedal 35.

Shaft 8 is provided with a crank 54, Fig. 12, and a pitman 55 is connected thereto, said pitman having a bifurcated or forked extension 56. The outer ends of said extension are pivotally connected by bolts 57, which pass, respectively, through the adjacent ends of two pairs of toggles, composed of links 58 and 59, the former being fulcrumed at their upper ends upon cap-screws 60 secured to the fixed bearing 17.

The lower end of each of the lower links 59 is provided with an Δ -shaped slot 61, through which slots extend cap screws 62 that are secured to a slide 63 mounted on the upper, round portion of shaft 19. Springs 64 serve to hold the links in such position that the screws 62 stand in the outer extremity of the lower portion of the

slot, as shown in Figs. 1 and 18. To provide for a dwell in the downward movement of slide 63, and the operative parts which work therewith (which will presently be described) I provide rollers 65, which stand in line and contact with the lower links 59, said rollers being mounted in the upper ends of arms 66 secured for vertical adjustment on the fixed bearing 18. As the pitman moves inwardly from the position shown in Fig. 1 the rollers contact with the links 59 and the links are caused to move over the cap screws 62 until the vertical portions of the slots 61 come into line with the screws; at such time the links will move downwardly, finally bringing the upper ends of the slots into contact with the screws and thereby causing the slide 63 to again assume its downward movement. The time and period of the dwell in the downward movement of the slide may be determined by adjustment of the arms or bars 66.

Secured to and extending downwardly from the slide 63 are two bars or links 67, said bars passing through suitable guides formed in the bearing 18. Said bars at their lower ends each carry a fixed block 68 which enters an annular groove 69 formed in the upper end of the twisting and driving head. Said head, see Figs. 3, 4 and 16, comprises a central section 70, and two similar side sections or plate-like members 71 and 71^a, these three elements being preferably secured together by through pins 72 and bolts 73. Each plate 71 adjacent its lower end and upon its inner face is provided with a transverse groove 74 in which are mounted blocks 75, 75. Each block is provided with an outer projecting rounded face, see Fig. 16, which coöperates with the hoop-clamping jaws, as will presently appear. Said blocks are adjustable with reference to the face of the members 71 and 71^a, respectively, through screws 76 and set-screws 77, so that they may be positioned to cause the jaws to properly function with hoops formed of different gage wire. The lower face of member 70 is also recessed to receive the upper ends of arms 78 of the hammer, said arms being held in place by set-screws 79. The hammer body (see Figs. 8 and 9) comprises two laterally off-set members or sections 80 and 80^a, from which extend two similarly disposed head or driving members 81 and 81^a, said members being thinner and narrower than the body sections 80 and 80^a, thereby producing shoulders 82 and 83. The lower faces of the driving members 81 and 81^a are each grooved, as at 84, and said faces also being given a slight upward inclination toward the center of the driver.

As will be seen upon reference to Fig. 3, the squared portion of shaft 19 passes down through the upper end of the hammer-car- rying slide and its lower end is threaded,

such threaded end forming the means of attachment for a hanger block 85, Figs. 11 and 16. Said block is provided with two pairs of laterally-extending arms 86, to each of which pairs is pivotally connected a hanger block 87, Figs. 6 and 16. Each of the blocks 87 is provided with two downwardly-extending lugs 88, and to each lug there is pivotally connected a wire clamping jaw 89. There are thus provided two pairs of oppositely-disposed jaws, the jaws of each pair being susceptible of being swung toward and from each other, while the two pairs may likewise be swung apart. Coil springs 90, Figs. 3 and 4, interposed between the jaws of each pair serve to separate said jaws at their lower ends, and springs 91 secured to pins 92 tend to draw the two pairs of jaws toward each other. Each jaw is provided with an inwardly-projecting portion 93 at its lower end and the vertically-disposed face thereof is roughened, as shown in Fig. 3. Normally, the clamping portions stand away from each other a sufficient distance to admit of the passage of the bent overlapping ends of the hoop, denoted by 94, therebetween, such position being indicated in Figs. 3 and 4. Projection of the ends upwardly to too great an extent is prevented by spring arms 95, of which there are four, said arms normally bridging the space between the clamping jaws and contacting the ends 94 and serving to bend said ends (one or the other) downwardly so that they lie in the same plane. Said arms 95, as will be noted upon reference to Fig. 16, are secured at their upper ends to the inner faces of the jaws 89 and converge toward each other. Each of the jaws 89 is provided on its outer face with a cross groove 96, and with a raised portion or projection 97, both adapted to coöperate with the presser-blocks 75, carried by the arms or plate-like members 71 which bear thereon, and which latter it may be noted are held against separation by distance bars 98, Figs. 1, 3 and 7. Each jaw is likewise provided with an inwardly-projecting curved shoulder 99, Fig. 3, which functions with shoulder 82 on the hammer or driver, as will presently appear. It will also be seen that the arms 78 of the hammer pass down between the arms 86 of block 85, Figs. 3 and 16, and that the head 80, 80^a also passes through and contacts with the walls of the slots denoted by 100 formed in the hangers 87. Thus it will be seen that the jaws and the operating arms or slides 71 therefor will partake of the rotary motion imparted to the shaft 19 without any lost motion and the slides 71 and the hammer may be moved up and down toward and from the pail and likewise with reference to the jaws.

The pail, denoted by 101, is primarily assembled by setting up the staves in the regu-

lar way, and an iron ring, commonly known as a truss hoop, is driven in place over the staves to hold the pail together. The bottom is then put in place so that it rests in the groove in the staves provided for it. The truss hoop is so positioned on the pail as not to interfere with cutting of the two grooves in the proper places for the permanent hoops, which grooves are cut after the pail is set up and the truss hoop is in place. The number of grooves is, of course, dependent upon the number of hoops to be placed about the pail. The pail having thus been set up and grooved for the hoops, the hoops are placed in position in the grooves provided for the same by a helper before it is turned over to the operator of the machine above described. The pail is then taken by the operator of the machine and placed on the anvil 38 with the upper edge thereof against the stop 41, which brings the hoop into position beneath the twisting and driving head. The operator then depresses the pedal 35 which acting through the link 37, the anvil 38 which is moved upwardly to a slight extent, lever 43, and latch bar 44, rocks the actuating lever 12 and releases the primary or main Gramme clutch. The movement of the anvil carries the hoop ends upwardly into operative relation with the twisting and stretching jaws. Motion is then imparted from the pinion 4 to the large gear 5 and through it to the shaft 8. This will cause the crank 54 to draw the pitman 55 inwardly straightening the toggle links 58 and 59 and causing a downward movement of the links 67 and a consequent downward movement of the parts associated therewith. Plate-like members 71, 71^a as they are moved downward over the jaws cause said jaws to approach each other by reason of the fact that the blocks 75 move out of the grooves 96 and onto the raised portions 97 of the jaws. This causes the jaws to clamp the bent ends of the hoops and upon a further downward movement the shoulders 82 upon the driving head contact the curved faces or shoulders 99 on the jaws and swing the opposite pairs of jaws outwardly, thereby stretching the hoop. While the jaws thus remain clamped a half revolution is imparted to the shaft 19 through the operation of the Gramme clutch 22 which is thrown into action by the operation of the cam 30 upon the shaft 8, the cam being so timed as to actuate the lever 27 and permit the secondary Gramme clutch 22 to come into operation. During this twisting operation a dwell in the downward movement of the hammer is provided for by the Δ shaped slots 61 formed in the links 59. When, however, the cap screws 62 reach the upper end of the slots 61 further downward movement is imparted to the driving hammer. Such downward movement is likewise im-

parted to the slides or plates 71, 71^a and the bars thereof pass off of the raised portions 97 and release the jaws from their clamping relation with the ends of the hoop. The hammer, however, is likewise moving downwardly at such time and passes between the spring arms 95, pushing them out of the way and contacting with the upper portions of the bent ends 94 and will drive the same into the pail-body, as indicated in Fig. 15.

As before noted, the cam 48 permits the operator, by pressure on the pedal, to raise the anvil to the height required for the stretching and twisting of the wire and then, later, as the cam is rotated, to allow the anvil to be raised to a slightly greater extent, so that the pail may be brought into close relation with the driver.

After the first hoop is driven the operator lifts the pail slightly and moves it forward over the anvil, the stop 41 retreating into the anvil and stops 42 coming into contact with the bottom of the pail so as to bring the second hoop directly in line with the jaws and driver.

It will of course be understood that the stops 42 will be adjusted inwardly and outwardly according to the distance the lowermost hoop stands with reference to the bottom of the pail with which the stops abut.

From the foregoing it will be seen that the operation of the machine is entirely automatic and all that the operator or attendant has to do is to properly position the pail with reference to the anvil and stops and to then depress the pedal, maintaining the pressure thereon until the operation of stretching, twisting and driving the hoop ends is completed.

Having thus described my invention, what I claim is:

1. In a machine of the character described, the combination of an anvil; a plurality of pairs of jaws adapted to clamp the ends of the hoop; means for rotating said jaws and thereby twisting the hoop; and a hammer coöperating with the jaws to spread the same and thereby tension the hoop prior to the twisting thereof.

2. In a machine of the character described, the combination of a plurality of jaws; means for forcing said jaws together to cause them to clamp the crossed ends of the hoop; a hammer adapted, when moved downward to its full extent, to drive the ends of the hoop into a pail, said hammer likewise coacting with the jaws to spread the same and to thereby tension the hoop; and means for rotating the jaws prior to the driving action of the hammer to twist the hoop after the same is tensioned.

3. In a machine of the character described, the combination of a plurality of pairs of jaws; means carried thereby for bringing

the upstanding ends of the hoops to the same relative distance from the pail body; means for causing said jaws to clamp the crossed ends of the hoop after they are thus positioned; a hammer adapted to drive the ends of the hoop into the pail, said hammer likewise coacting with the jaws to cause a lateral movement thereof to tension the hoop; and means for twisting the tensioned hoop prior to the final driving action of the hammer.

4. In a machine of the character described, the combination of a plurality of pairs of jaws, each jaw being pivoted so that it may be swung away from the opposite pair; a spring arm carried by each jaw, said arms normally projecting inwardly toward each other at their lower ends and contacting the upstanding crossed-over ends of the hoop as the parts are moved toward each other; means acting to force the jaws of each pair together to clamp the ends of the hoop; a hammer adapted by its descent to swing the pairs of jaws apart and to thereby tension the hoop; and means for bodily rotating the jaws while thus clamped and spread to twist the upstanding ends of the hoop, such twisting action taking place prior to the final descent of the hammer to drive the ends of the hoop into the pail.

5. In a machine of the character described, the combination of a shaft; means for imparting a step-by-step rotary movement thereto; a hanger supported upon the lower end of the shaft and movable therewith; a pair of blocks pivotally supported at the opposite ends of said hanger; a pair of jaws pivotally mounted upon each of said blocks; a member mounted to slide and reciprocate upon the lower end of the shaft aforesaid, such member carrying a pair of downwardly-extending plates and a hammer interposed between said plates; presser-bars carried by each of the plates, said bars projecting outwardly beyond the inner face of the plate and contacting with the adjacent faces of the jaws and adapted in their inoperative position to rest in a groove or channel formed in each of the jaws; and means to reciprocate the sliding member to cause the bars to force the jaws together and to carry the hammer downwardly and through the action thereof to cause the opposite pairs of jaws to be spread apart and to thereby tension the hoop prior to the twisting thereof due to the rotation of the shaft, and prior to the final driving action of the hammer.

6. In a machine of the character described, the combination of an anvil; a retreating stop located in the upper face thereof; an adjustable stop extending outwardly from the forward end thereof; and associated hoop-driving means.

7. In a machine of the character described,

the combination of a pivoted anvil; a retreating stop located in the upper face thereof; an adjustable stop extending outwardly from the forward end of the anvil; associated hoop-driving means; power-driven means for actuating said hoop-driving means; and means under the control of the operator for raising the anvil and simultaneously bringing the power-operated means into action.

8. In a machine of the character described, the combination of a constantly-driven power shaft; a counter-shaft; a clutch interposed between the driven shaft and the counter-shaft; means acting normally to hold said clutch out of operation; a twisting and driving mechanism operated through the movements of the counter-shaft; a pivoted anvil adapted to support the pail upon which the hoop is secured; connections between the anvil and the means for holding the clutch in its normally inactive position, said means serving, when the anvil is brought to operative position, to release the clutch; and means under the control of the operator, for positioning the anvil.

9. In a machine of the character described, the combination of a constantly driven shaft; a counter-shaft; a clutch interposed between said shafts; means for normally holding said clutch in inoperative position; a vertically-disposed actuating shaft; connections between said counter-shaft and said actuating shaft, including a second clutch; means for normally holding said second clutch in inoperative position; a cam mounted on the counter-shaft for actuating said clutch-controlling means; a hoop-twisting and driving mechanism carried by the actuating shaft; an anvil underlying the hoop-twisting and driving mechanism; connections between said anvil and the means for controlling the first-named clutch; and means for raising the anvil and thereby throwing the clutch holding means out of holding position.

10. In a machine of the character described, the combination of a twisting and driving head; a pivoted anvil; means under the control of the operator for raising said anvil; and means working in timed relation with the twisting and driving head to stay the upward movement of the anvil until the twisting action has been effected.

11. In a machine of the character described, the combination of a tensioning, twisting and driving head; a pivoted anvil movable toward and from said head; a toggle mechanism under the control of the operator for raising said anvil; and a cam working in timed relation with the head aforesaid and serving to arrest the upward movement of the anvil until the tensioning and twisting operations are effected.

12. In a machine of the character de-

scribed, the combination of a tensioning, twisting and driving head; a pivoted anvil; a toggle mechanism under the control of the operator for moving said anvil upwardly toward and from the head aforesaid; a cam coöperating with the toggle mechanism to arrest the movement of said toggle and consequently the upward movement of the anvil; and means for rotating said cam in timed relation with the movements of the head.

13. In a machine of the character described, the combination of an anvil for supporting the pail upon which the hoop is to be secured; a plurality of jaws adapted to grasp the crossed-over ends of the hoop; a driver associated with said jaws to spread the same and to thereby tension the hoop; means for imparting a twisting movement to the jaws; and means for reciprocating the driver, said means embodying mechanism adapted to impart a dwell to the downward movement of the driver while the twisting action is being effected.

14. In a machine of the character described, the combination of a suitable support for the pail upon which the hoop is to be secured; a shaft; means for imparting a step-by-step rotary movement to the shaft; a plurality of pairs of jaws pivotally supported upon the lower end of said shaft; a sliding member mounted upon the shaft; a driver carried by said member; an actuating shaft; a pitman secured to said actuating shaft; toggle links attached to the pitman and adapted to be straightened thereby; and a lost-motion connection between said links and the sliding member, whereby a dwell will be given to the driver during the twisting operation of the jaws.

15. In a machine of the character described, the combination of a suitable support for the pail to which the hoop is to be secured; a shaft; means for imparting a step-by-step rotary movement to the shaft; a plurality of pairs of pivoted jaws supported and carried by the lower end of the shaft; a sliding member mounted upon the shaft; a driver secured to said sliding member, the driver coöperating with the oppositely-disposed pairs of jaws to spread the same as it is moved downwardly; means carried by the sliding member to cause the jaws to clamp the ends of the wire hoop inserted between the same; an operating shaft; a pitman connected to the shaft; toggle links operated by the pitman, the lower member of each pair of links being provided with an Δ -shaped slot; a cap-screw extending outwardly from the opposite sides of the sliding member and projecting through the slots; springs serving to normally hold the

links so that the cap-screws occupy a position in the extremity of the lower arms of the slots; and rollers adjustably supported in line with the toggle links and serving, through contact therewith, to cause the links to move with reference to the cap-screws and to thereby effect a dwell in the downward movement of the sliding member and consequently a downward movement of the driver and jaw-clamping members, such dwell taking place while the jaws are being rotated to effect the twisting operation of the previously-tensioned hoop.

16. In a machine of the character described, the combination of a plurality of jaws adapted to grasp and clamp the crossed-over ends of a wire hoop to be secured upon a pail; a spring arm mounted upon the inner face of each jaw, said arms normally extending outwardly and bridging the space between the adjacent faces of the jaws, the arms contacting with the crossed-over ends of the hoops and serving to bring them into the same horizontal plane; and a hammer or driver adapted to be forced downwardly and to contact with the ends of the hoop, said hammer bearing upon the spring-arms and forcing the same laterally away from each other as it contacts with the ends of the hoop.

17. In a machine of the character described, the combination of a pivoted anvil; an associated hoop driving means; power driven means for actuating said hoop driving means; and means under the control of the operator for raising the anvil and simultaneously bringing the power operated means into action.

18. In a machine of the character described, the combination of an anvil; means adapted to clamp the crossed over ends of a hoop; a hammer adapted when moved downwardly to its full extent to drive the ends of the hoop into a pail, said hammer likewise coöperating with the clamping means to spread the same and to thereby tension the hoop; and means for rotating said clamping means prior to the driving action of the hammer.

19. In a machine of the character described, the combination of means adapted to clamp or grasp the crossed ends of a hoop; means acting to spread said clamping means and to thereby tension the hoop; and means for twisting the hoop after it is tensioned and to thereby lock the hoop against spreading and positioning the ends for driving.

In testimony whereof I have signed my name to this specification.

ROBERT SCHLEICHER.