

No. 680,399.

Patented Aug. 13, 1901.

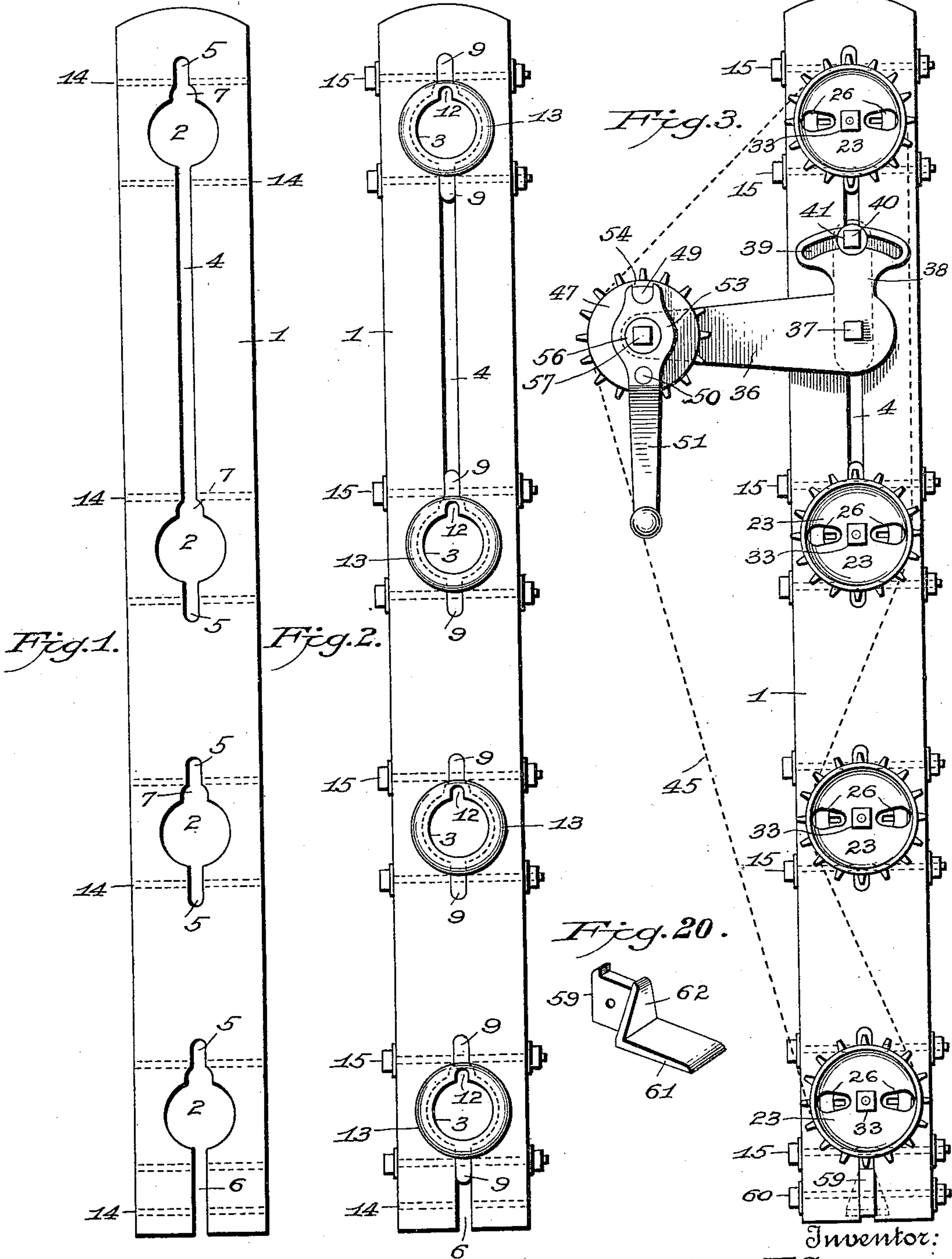
W. F. SEARGEANT.

SLAT AND WIRE FENCE MACHINE.

(Application filed Dec. 19, 1900.)

(No Model.)

3 Sheets—Sheet 1.



Witnesses
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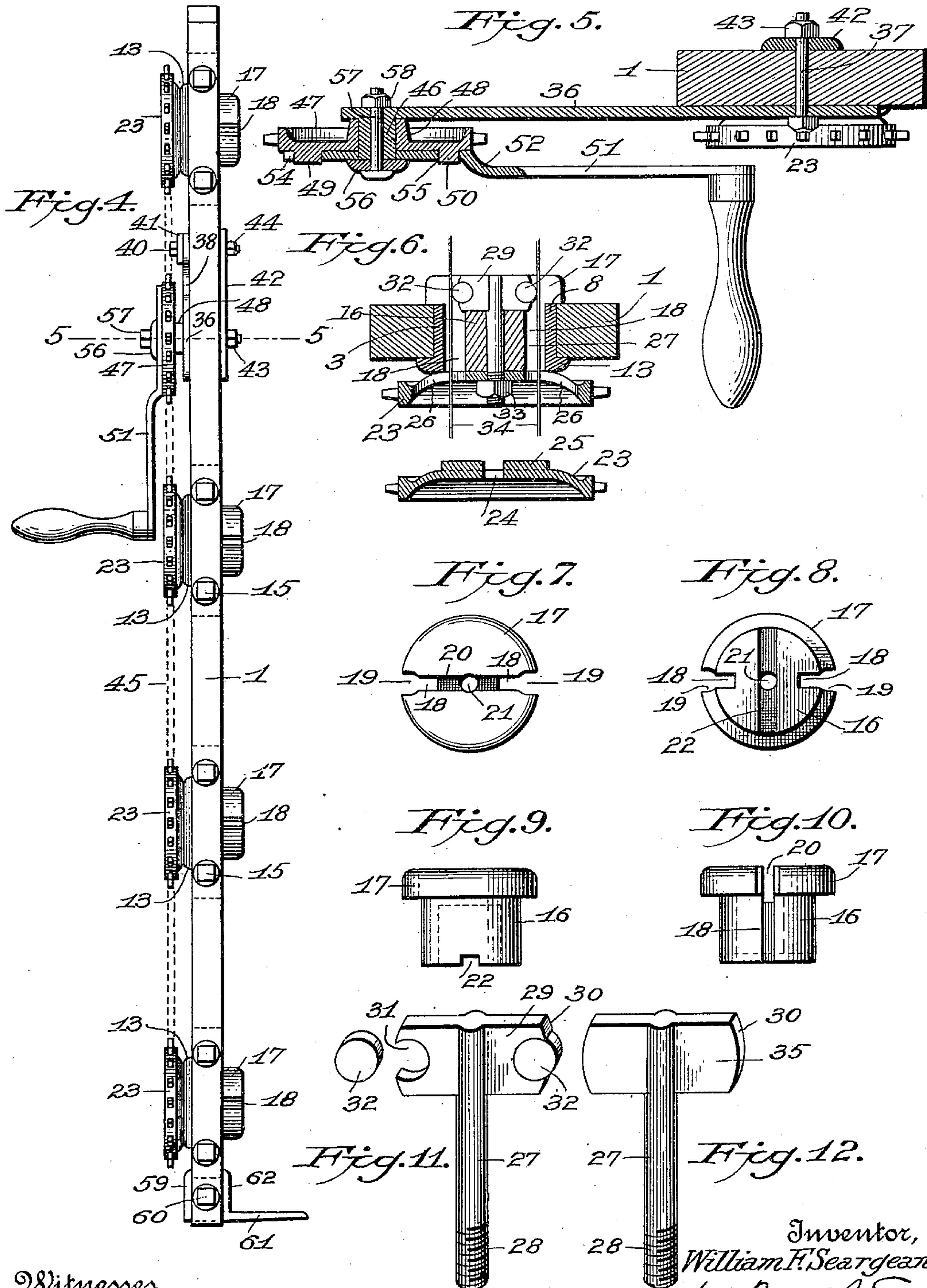
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3 Sheets—Sheet 2.



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3 Sheets—Sheet 3.

Fig. 13.

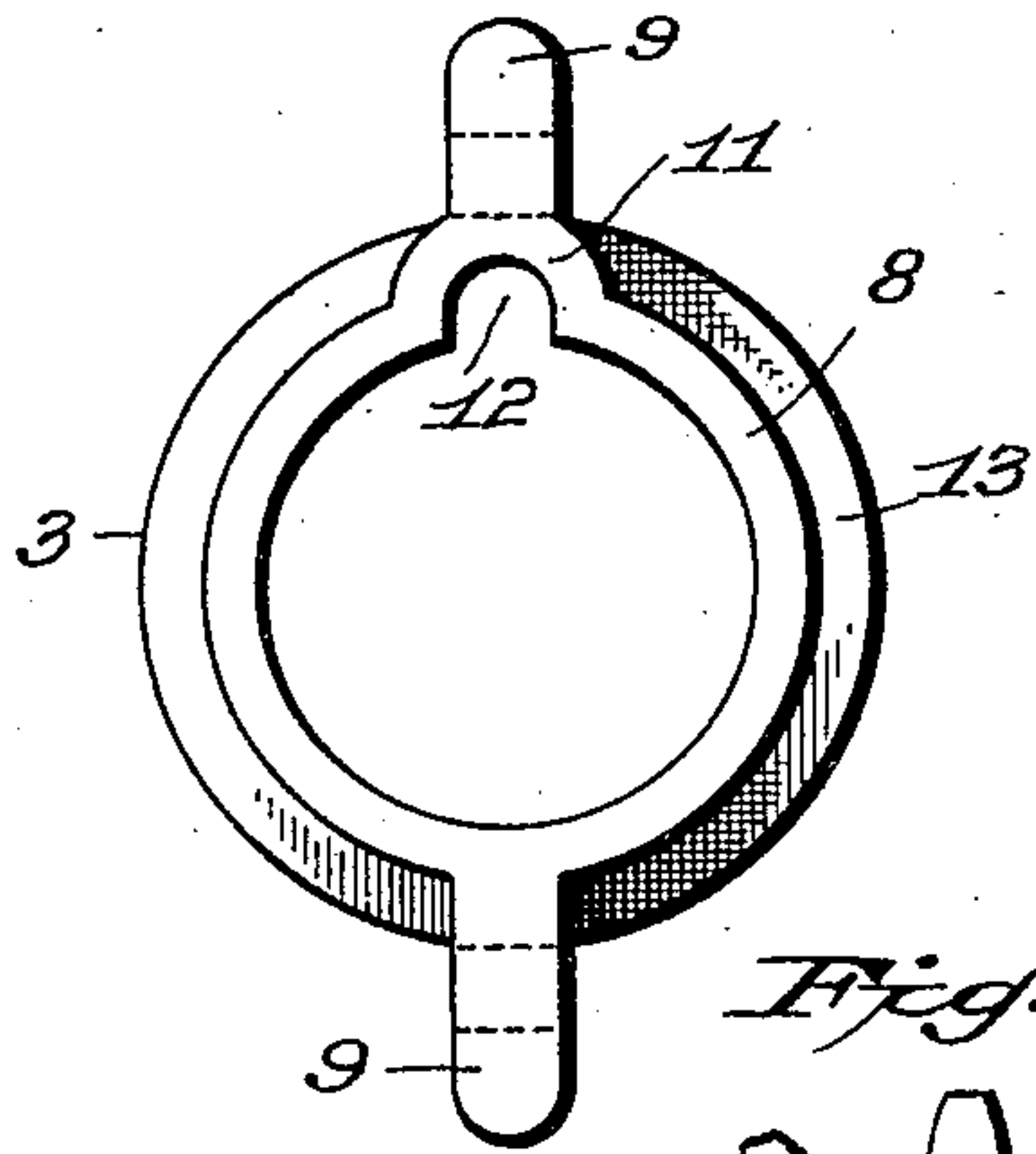


Fig. 14.

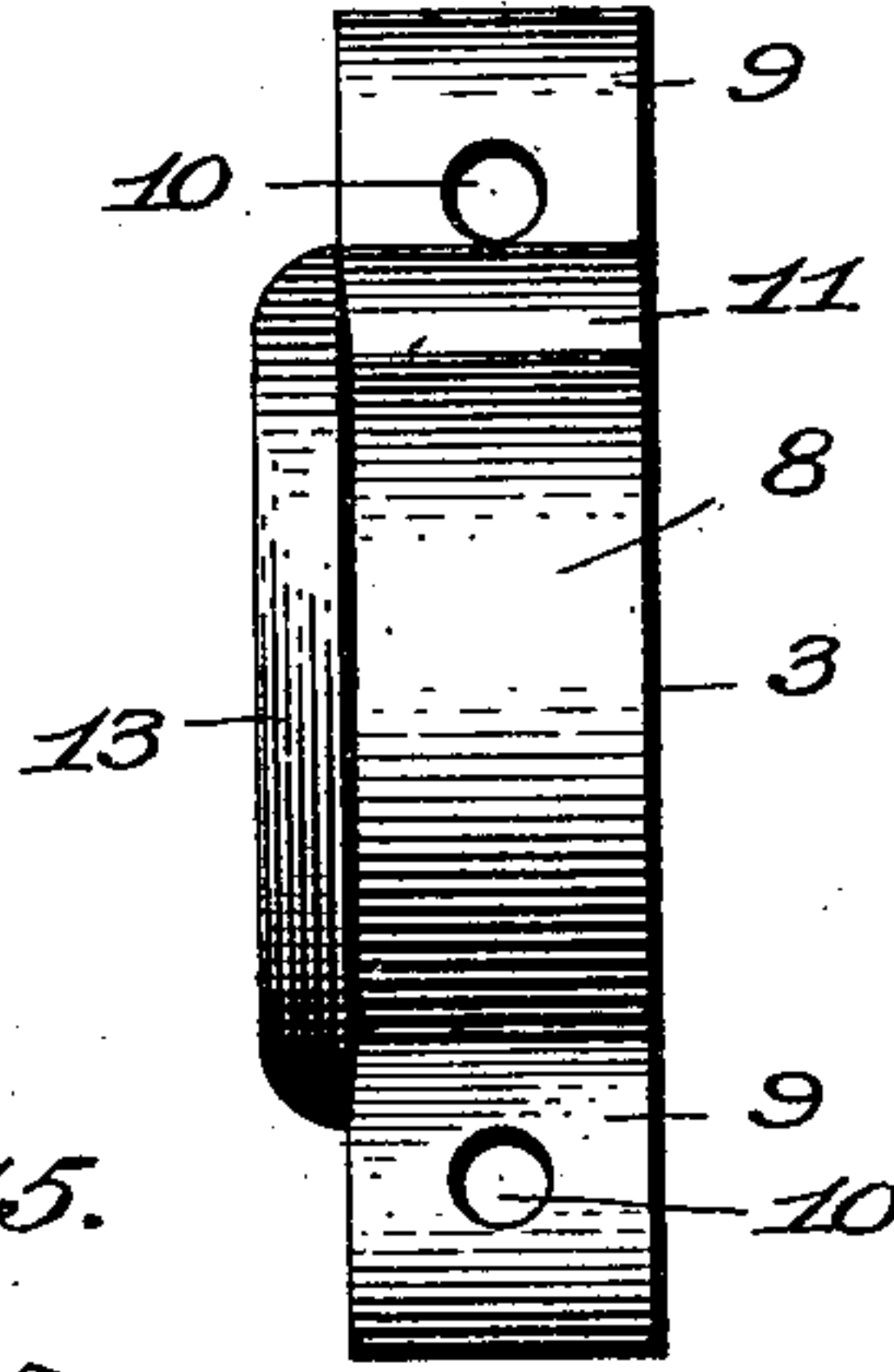


Fig. 15.

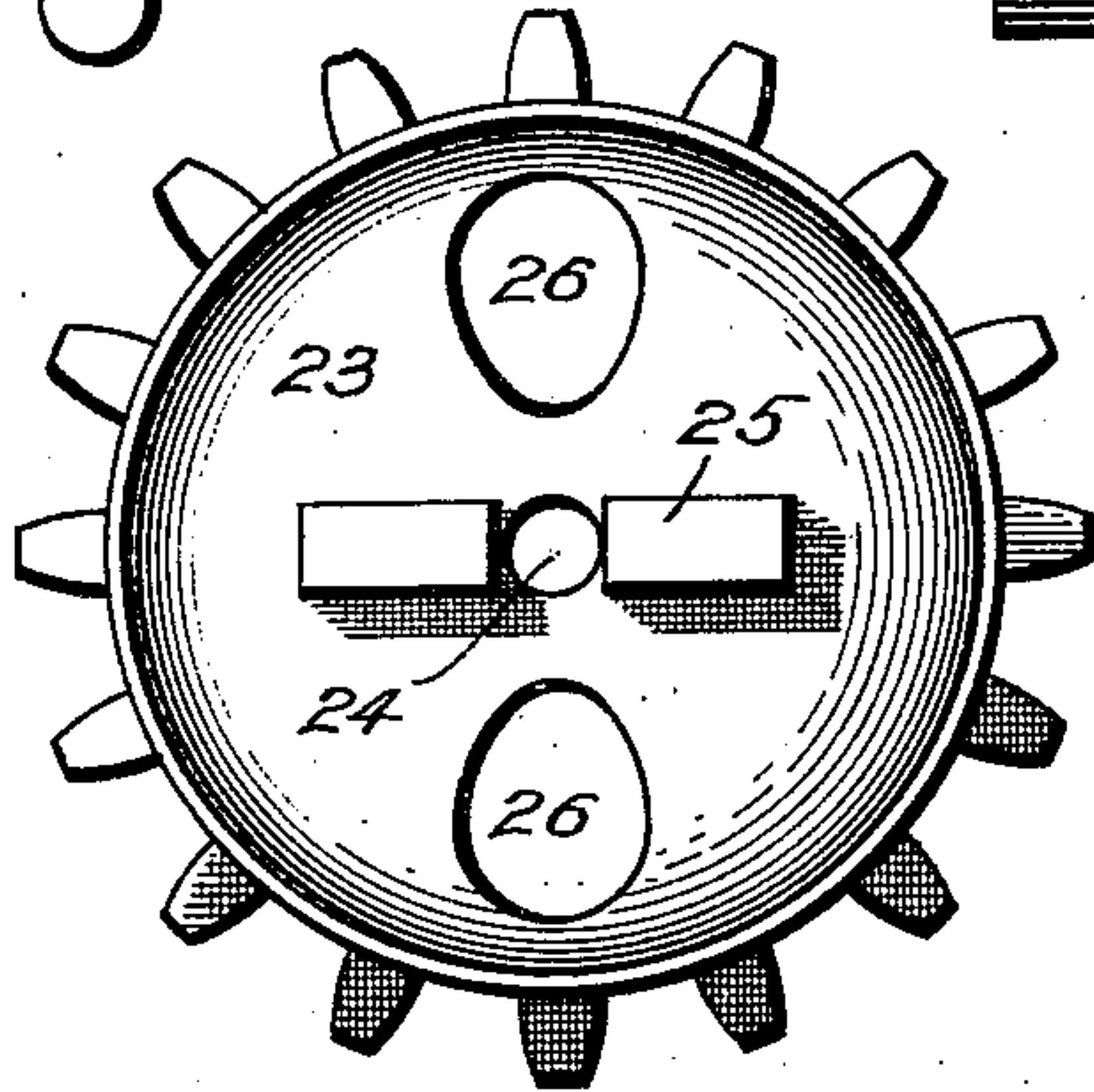


Fig. 18.

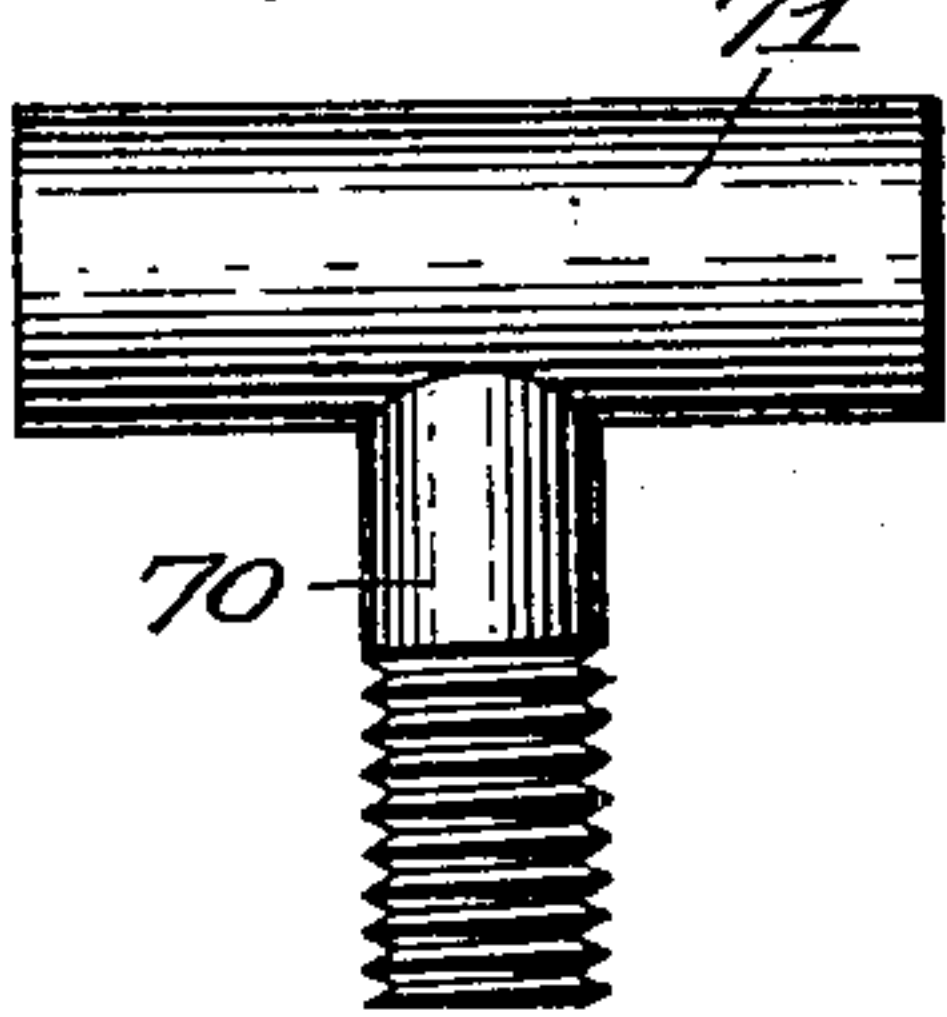


Fig. 19.

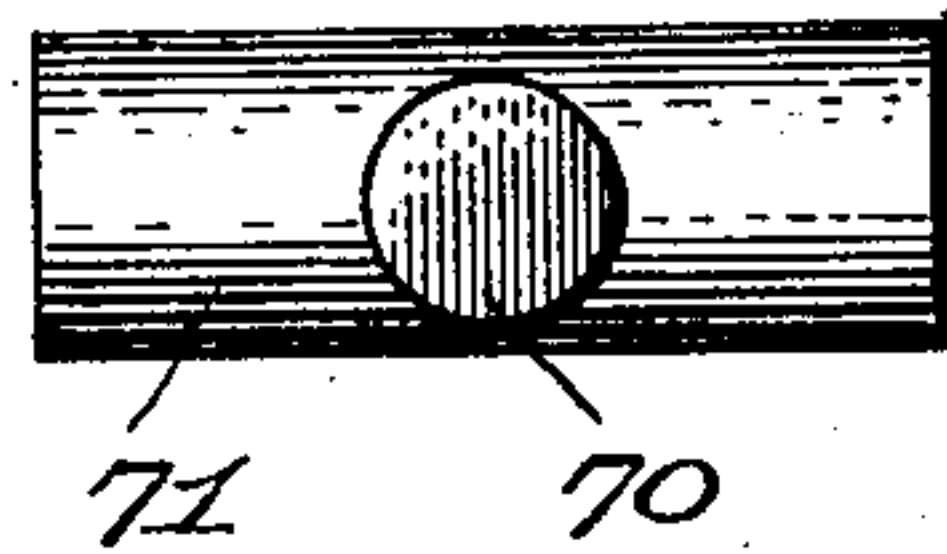


Fig. 16.

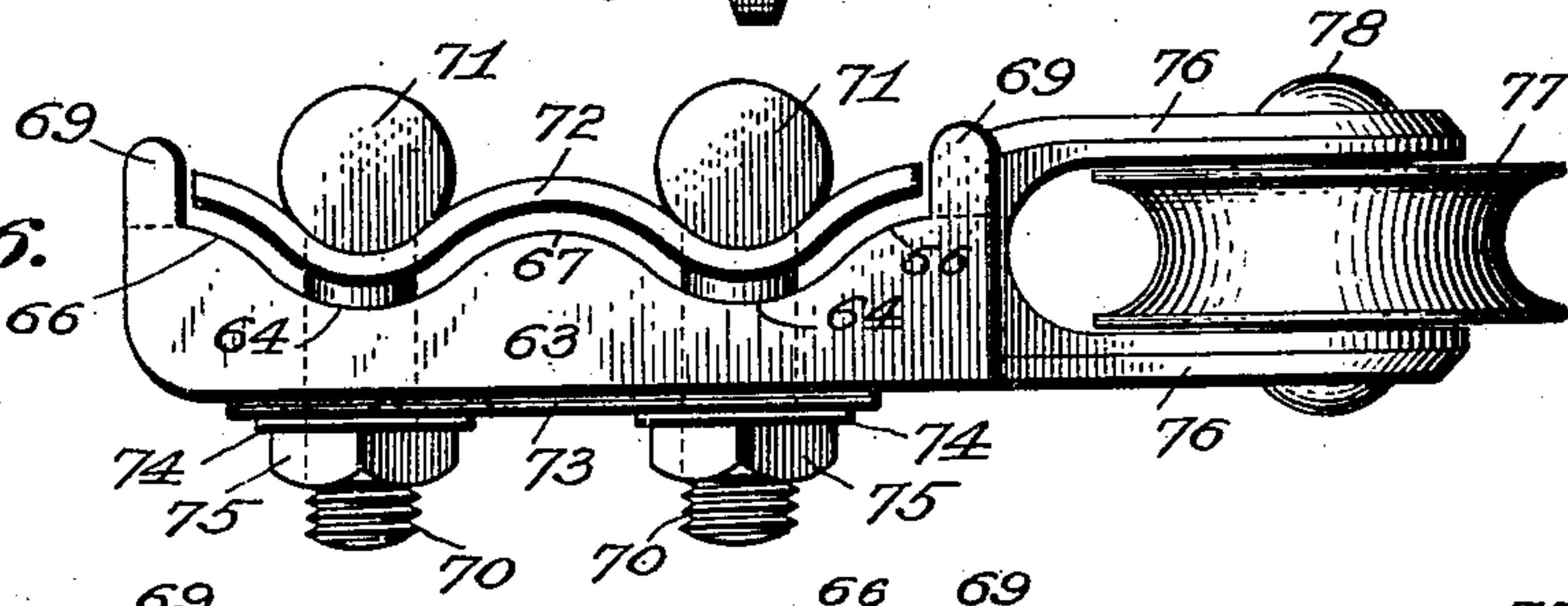
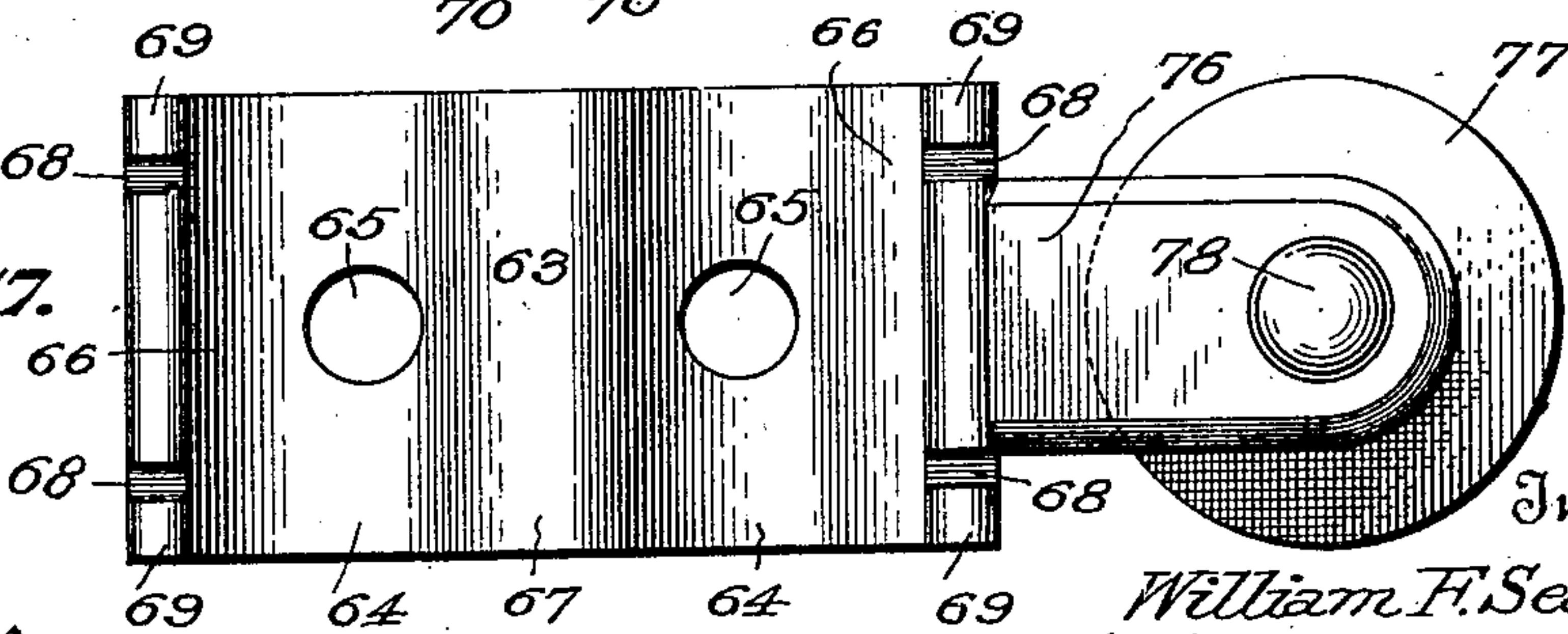


Fig. 17.



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UNITED STATES PATENT OFFICE.

WILLIAM F. SEARGEANT, OF MARSHALL, MISSOURI.

SLAT-AND-WIRE-FENCE MACHINE.

SPECIFICATION forming part of Letters Patent No. 680,399, dated August 13, 1901.

Application filed December 19, 1900. Serial No. 40,419. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM F. SEARGEANT, a citizen of the United States, residing at Marshall, in the county of Saline and State of Missouri, have invented new and useful Improvements in Slat-and-Wire-Fence Machines, of which the following is a specification.

This invention relates to certain new and useful improvements in fence-machines of the character described in my pending application, Serial No. 40,418, filed December 19, 1900, and has for its principal objects to provide a novel form of wire-twister and wire-spacing mechanism, to provide novel means for adjusting the tension of the drive-chain, and to provide a novel construction of wire-straining device.

In addition to the above other objects of the invention may be stated to relate to improvements in details of construction whereby I aim to produce a fence-machine which shall be simple in construction and operation, durable in service, and one which may be economically manufactured.

With these objects in view the invention resides in the parts and combination of parts hereinafter described, and particularly pointed out in the claims.

I have illustrated the invention in the accompanying drawings, wherein—

Figure 1 is a front view of the upright. Fig. 2 is a similar view showing the journal-bearings for the twist-ers secured in the upright. Fig. 3 is a front view of the complete machine. Fig. 4 is a side view of the complete machine. Fig. 5 is a sectional plan view, enlarged, taken on the line 5 5 of Fig. 4, the crank being shown raised to a horizontal position. Fig. 6 is a cross-sectional view through the upright and one of the wire-twisters and showing in a detached view the sprocket-wheel removed from the twister. Fig. 7 is a plan view of one end of the twister-head. Fig. 8 is a similar view of the opposite end of the same. Figs. 9 and 10 are side views of the twister-head, showing the same in different positions. Figs. 11 and 12 are views, respectively, of a detail of the wire-twister and a modification thereof. Fig. 13 is a front elevation, enlarged, of the journal for the twister. Fig. 14 is a side view of the same. Fig. 15 is a rear elevation, in enlarged view,

of a sprocket-wheel. Fig. 16 is a side view of the straining device. Fig. 17 is a plan view of the same. Fig. 18 is a detail view of a tension-bolt. Fig. 19 is a bottom plan view of the same, and Fig. 20 is a perspective view of the picket-rest.

Referring now to the drawings, the numeral 1 indicates the upright, which is shaped from a plank of a suitable length and thickness. Said plank or upright is provided with four circular apertures 2 for the purpose of receiving the journal-bearings 3. (Shown in Figs. 2, 13, and 14.) These apertures are preferably located as shown—that is to say, an aperture is located near the top and bottom of the upright, a third aperture is located about centrally thereof, and the fourth midway between the central and lowermost apertures. The central and upper apertures are connected by a slot 4, while short slots 5 of the same width as the slot 4 extend, respectively, from the upper sides of the upper and lower apertures, from the lower side of the central aperture, and from the upper and lower sides of the aperture immediately below the central aperture. A slot 6 extends from the under side of the lowermost aperture through the end of the upright. Each of the apertures 2 has its upper side cut out to afford a small semicircular recess 7.

Each of the journal-bearings for the twist-ers comprises a ring 8, extending from the diametrically opposite sides of which are two tongues 9, provided with transverse apertures 10. Said ring is also provided with a semicircular offset 11, affording a recess or opening 12. One of the tongues 9 projects from the outer side of the offset 11, as shown in Fig. 13. Extending at right angles from one face or edge of the ring 8 is an annular flange 13. The ring 8 is of a circumference to fit snugly in the apertures 2, and the tongues 9 and the offset 11 are of a size to fit snugly in the slots 4 or 5 and the recesses 7, respectively. The upright is provided with a series of transverse apertures 14. (Shown by dotted lines in Fig. 1.) The journal-bearings 3 are fitted in place in the upright in the manner shown in Fig. 2 and are secured in place by means of bolts 15, passed through the apertures 14 and the apertures 10 in the tongues 9. In the present case the flange 13

is disposed on the front side of the upright, as shown.

Referring now to Figs. 6 to 10, each of the twist-ers comprises a twister-head having a cylindrical portion 16, which is of a diameter to journal snugly in the ring 8 of the journal-bearing, and an annular flanged portion or head 17, overlapping and abutting against the rear edge of the ring 8, which lies flush with the side of the upright. On opposite sides of the twister-head are provided radial slots 18, which cut through the flange 17 and extend part way into the cylindrical portion or journal 16 and are adapted to receive the wires to be twisted about the pickets. The portion of the slots in the flange or head 17 is enlarged in a circular form, as indicated at 19. The numeral 20 indicates a groove provided in the head of the twister and extending down a short distance in the journal 16, as shown best in Fig. 10, said groove connecting or forming a continuation of the upper part of the wire-slots 18. Extending longitudinally through the twister-head is an aperture 21. Formed in the bottom of the twister-head and extending at right angles to the groove 20 is a cross-groove 22. The numeral 23 indicates a sprocket-wheel (shown enlarged in Fig. 15) having a flat side for bearing smoothly and frictionally against the flanged end of the ring 8 and provided with a central aperture 24. Located centrally of the sprocket-wheel, on its flat side, is a rectangular projection 25 of the same length and size of the cross-groove 22, in which it is adapted to be received. On opposite sides of this projection the sprocket-wheel is provided with enlarged substantially egg-shaped apertures 26, the purpose of which will presently appear.

In Figs. 11 and 12 I have shown two forms of a combined clamping-bolt and wire-spacer employed to fasten the parts of the twister together. That form shown in Fig. 11 is shown combined with the twister in Fig. 6. This device comprises a bar 27, having a screw-threaded end 28, and at its opposite end having an integral flat cross-plate 29, the outer ends of which are preferably rounded, as indicated at 30. The outer ends of the cross-plate 29 are provided with transverse circular recesses 31 for the reception of anti-friction-rollers 32, the recesses 31, cut through the ends of the cross-plate, leaving a space in each instance for the roller to project through, said spaces being smaller than the diameter of the rollers to prevent them from being pulled edgewise out of the recesses. In securing the parts of the twister together bar 27 is passed through the aperture 21 in the twister-head and through the aperture 24 in the sprocket-wheel, the cross-plate 29 lying in the groove 20, its outer edge being flush with the face of the head or flange 17 and the projection 25 fitting in the cross-groove 22. A nut 33 is then screwed on the end 28 of bar 27 and the parts described thus firmly clamped together to move as a whole.

The ends of the cross-plate 29 project slightly beyond the bottoms of the grooves 18, and the wires 34, which are passed through the openings 26 in the sprocket-wheel and through the wire-slots 18 in the twister-head, are thus held by the rollers 32 out of contact with the bottoms of said slots and are in frictional engagement with said rollers only, and thereby their passage through the twister as they are twisted about the pickets is rendered easy and the force required to operate the machine consequently diminished. The cross-plate 35 of Fig. 12 differs from that just described in that the rollers 32 are omitted and the wires slide over the rounded ends 30. It is obvious that by having a number of bars 27 provided with cross-plates of different lengths I can increase or diminish the space between the wires 34 within certain limits by employing the bar having the cross-plate of the desired length. When the cross-plate 29 having the rollers is in place in the groove 20, the walls of said groove will prevent the rollers from working out of their recesses.

The twist-ers as a whole, each comprising the twister-head and sprocket-wheel connected in the manner described, are rotatably mounted in the journal-bearings 3. The apertures 26 are of sufficient size to prevent the wires from rubbing against their edges in passing through the twist-ers in the twisting operation and they are also large enough to permit an ordinary splice in the wire to be passed through them. In order that a splice may be passed over, the twister is revolved until one or the other of the enlarged openings 19 is brought to coincide with the recess 12 in the ring 8, when the twister can readily be passed over the wire by moving the machine forward, owing to the larger opening presented, the wire being temporarily sprung out of the slot 18, as will be understood. By interposing the flange 13 of the journal-bearings between the upright and the bearing-face of the sprocket-wheel the teeth of the sprocket-wheel will be thrown well away from the upright and in line with the driving sprocket-wheel hereinafter described. To this end the sprocket-wheels are in addition made of a concavo-convex shape, as shown.

The numeral 36 indicates an arm, preferably tapering toward its outer end, as shown, for supporting the driving mechanism for the sprocket-chain of the machine. At its wide end this arm is apertured to receive a bolt 37, and is provided on its upper side with an extension 38, which is gradually increased in width from the arm 36 outward, said widened portion being curved at its outer end and provided with a curved slot 39.

The numeral 40 indicates a bolt which is adapted to be passed through the slot 39 and the slot 4 of the upright, a washer 41 being interposed between its head and the side of the extension 38, upon which it bears.

The numeral 42 (see Figs. 4 and 5) indi-

cates a clamping-plate having apertures near opposite ends.

In securing the arm 36 on the upright the bolt 37 is passed through the aperture therein, the slot 4 of the upright, and the aperture at one end of the clamping-plate 42, after which a nut 43 is screwed on its end to bear more or less firmly against the plate 42. The bolt 40 passes through the aperture in the upper end of said plate and is secured by means of a nut 44. Nuts 43 and 44 may both be tightened to clamp arm 36 in place; but nut 44 is principally used for this purpose, as it is designed by loosening this nut to turn the arm 36 on bolt 37 as a pivot to adjusted positions for the purpose of securing the proper tension of the sprocket-chain 45. A greater adjustment of the arm 36 for this purpose can be effected by loosening the nuts 43 and 44 and moving said arm bodily upward or downward, the bolts 37 and 40 sliding in the slot 4. At its outer end the plate 36 is provided with an integral stud or journal 46, Fig. 5.

The numeral 47 indicates the driving sprocket-gear, having a central hub 48 journaled on the stud 46. The hub 48 projects slightly from the inner face of the sprocket-wheel in order to hold said sprocket-wheel away from the arm 36. The outer face of the sprocket-wheel 47 is provided with a semi-circular projection 49 and a stud 50, located, respectively, on diametrically opposite sides of the wheel near the edge thereof.

The numeral 51 indicates the crank-arm for turning the driving sprocket-wheel 47, said arm being offset at 52 to carry it free of the twist-ers. At its outer end this arm is provided with an enlarged flattened portion or head 53, having an aperture to receive the stud 46, so that the head 53 will lie flush against the outer face of the sprocket-wheel 47. At its outer end the head 53 is provided with a semicircular recess 54, which receives the projection 49, and near the offset portion 52 with an aperture 55 for receiving the stud 50. By means of a washer 56 and a bolt 57, passed through said washer, and the stud 46 and arm 36, which latter parts are provided with a common aperture for the purpose, the sprocket-wheel and crank-arm are held in place on the stud. A nut 58 secures the bolt 57. The projection 49 and stud 50 insure a firm engagement between the sprocket-wheel and crank, so that the former may be turned by the latter. By means of the sprocket-chain 45 (shown in dotted lines) passed about the several sprocket-wheels 23 and the driving sprocket-wheel 47 all of the twist-ers may be simultaneously revolved by turning the crank-arm 51.

In Figs. 3 and 4 I have shown applied to the upright, and in Fig. 20 have shown in detail, a slightly-different construction of picket-rest from that disclosed in my companion application referred to, although in essential respects they are the same—that is

to say, the present device comprises a metal plate 59 of a thickness to fit snugly in the space 6 of the upright and having its upper edge recessed to receive the bottom tongue 9 of the lowermost journal-bearing and being provided with an aperture whereby it may be secured in position by the bolt 60, passed transversely through the upright. In the present case, however, the plate 61, constituting the support, has extending upward from it a flange 62, which is of the same width as the plate 61 at its lower end, but tapers upwardly to the top of the plate 59 and to the same width as the latter, as shown in Fig. 20. The parts of the picket-rest are integrally connected, said picket-rest being formed at a single casting. The flange 62 and the inner end of the plate 61 abut against the face of the upright and assist in firmly bracing the picket-rest in place. When it is desired that the pickets should rest upon the ground, the picket-rest may be secured in the upright to extend in the reverse direction to that shown in Fig. 4.

In Figs. 16 to 19 I have illustrated the parts pertaining to a straining device for imparting the proper tension to the wires to be twisted. This device comprises a rectangular block 63 of metal having its upper side corrugated to provide two transverse recesses 64, located near opposite ends of the block. Centrally of these recesses are provided openings 65. The corrugations also provide two rounded surfaces 66, one at each end of the block, and a central rounded surface 67. Two wire-slots 68 are provided in upward projections 69, located at opposite ends of the block 63, which slots prevent the wires from slipping off of the block. Figs. 18 and 19 illustrate the tension-bolt. This bolt comprises a screw-threaded shank 70 and a cross-head 71, round in cross-section, the whole device having the shape of the letter T. The numeral 72 indicates a tension-plate, which is bent to conform exactly to the curvatures of the upper side of the block 63, as clearly shown. The tension-plate 72 is of the same width as the block 63 and is of a length equal to the distance between the guards 69 at opposite ends of the block. Said plate is also provided with apertures corresponding to the apertures 65 in said block. The under side of the block 63 is flat, as shown, and to this under side is applied a rubber plate 73. Tension-bolts are then passed through the tension-plate 72, apertures 65 in the block 63, and through suitable apertures in the rubber plate 73, washers 74 are inserted on the shanks thereof, and nuts 75 are then screwed on each shank. The cross-heads 71 engaging in the recesses of the tension-plate 72 will prevent turning of the tension-bolts as the nuts 75 are screwed on. The wires pass between the upper surface of the block 63 and the under surface of the tension-plate 72, and by turning nuts 75 said tension-plate may be made to clamp the wires

more or less firmly, so that the necessary resistance may be offered to their passage through the straining device as they are twisted about the pickets. At the same time
 5 the pressure of the tension-plate upon the wires is yielding, owing to the provision of the rubber plate 73, so that said tension-plate may readily yield to allow for unevenness in the wires. Projecting from one end of the
 10 block 63 are two flat spaced parallel arms 76, located between which is a grooved pulley 77, journaled on a pin 78, secured in said arms. Over this pulley is passed a rope (not shown) to be tied to a suitable post or to a tree and
 15 by pulling on which rope the proper strain may be imparted to the wires, as will be understood. The arms 76 are of a width to extend between the two slots 68, so that the wires may pass down on either side of said
 20 arms between the end of the block and the pulley 77. The corrugated character of the block 63 and the tension-plate 72 renders it very easy to impart the necessary pressure upon the wires, owing to the tortuous pas-
 25 sage they are compelled to take in passing through the straining device.

It will be noticed that in the present case I dispense with the bumper-plates described in my companion case for forcing the pickets
 30 to position, the present arrangement contemplating the direct contact of the heads 17 of the twist-ers with the pickets for this purpose.

Having thus described my invention, what I claim is—

35 1. In a fence-machine, an upright having a series of circular openings from opposite sides of each of which extend slots, a journal-bearing secured in each of said openings and comprising a ring having on opposite sides
 40 tongues located in said slots and provided around one edge with an annular flange for engaging the face of the upright, a twister revolubly mounted in the ring of each journal-bearing, and means for revolving said
 45 twist-ers, substantially as described.

2. In a fence-machine, in combination with an upright, a series of twist-ers journaled therein, each of which comprises a twister-head having a central aperture and in its op-
 50 posite sides radial wire-slots connected by a groove formed in one end of the twister-head, a sprocket-wheel abutting against the opposite end of the twister-head and having a central aperture and wire-openings, a bolt passed
 55 through the apertures in said twister-head and sprocket-wheel and having a nut screwed on one end, and a cross-plate at the other end of said bolt lying in said groove, and means for revolving said sprocket-wheels, substan-
 60 tially as described.

3. In a fence-machine, in combination with an upright, a series of twist-ers journaled therein, each of which comprises a twister-head having a central aperture and in its op-
 65 posite sides radial wire-slots connected by a groove formed in one end of the twister-head,

a cross-groove formed in the opposite end of the twister-head, a sprocket-wheel abutting against said latter end and having a projec-
 70 tion engaging in said cross-groove and provided with a central aperture and with wire-openings, a bolt passed through the apertures in said twister-head and sprocket-wheel and having a nut screwed on one end, and a cross-plate at the other end of said bolt lying in
 75 said groove, and means for revolving said sprocket-wheels, substantially as described.

4. In a fence-machine, in combination with an upright, a series of twist-ers journaled therein, each of which comprises a twister-head having a journal provided with a flanged
 80 head and having a central aperture extending through the twister-head and in its opposite sides radial wire-slots connected by a groove formed in and extending across said
 85 head, a sprocket-wheel abutting against the end of said journal and having a central aperture and wire-openings, a bolt passed through the apertures in said twister-head and sprocket-wheel and having a nut screwed
 90 on one end, and a cross-plate at the other end of said bolt lying in said groove and having rounded ends projecting beyond the bottoms of said wire-slots, and means for revolving said sprocket-wheels, substantially as de-
 95 scribed.

5. In a fence-machine, in combination with an upright, a series of twist-ers journaled therein, each of which comprises a twister-head having a journal provided with a flanged
 100 head and having a central aperture extending through the twister-head and in its opposite sides radial wire-slots connected by a groove formed in and extending across said
 105 head, a sprocket-wheel abutting against the end of said journal and having a central aperture and wire-openings, a bolt passed through the apertures in said twister-head and sprocket-wheel and having a nut screwed on
 110 one end, and a cross-plate at the other end of said bolt lying in said groove and having at opposite ends antifriction-rollers projecting beyond the bottoms of said wire-slots, and means for revolving said sprocket-wheels, sub-
 115 stantially as described.

6. In a fence-machine, in combination with an upright, a series of twist-ers journaled therein, each of which comprises a twister-head having a journal provided with a flanged
 120 head and having a central aperture extending through the twister-head and in its opposite sides radial wire-slots, connected by a groove formed in and extending across said
 125 head, a sprocket-wheel abutting against the end of said journal and having a central aperture and wire-openings, a bolt passed through the apertures in said twister-head and sprocket-wheel and having a nut screwed on
 130 one end, a cross-plate at the other end of said bolt lying in said groove and having its opposite ends recessed, and antifriction-rollers mounted in said recesses and projecting be-

yond the bottoms of said wire-slots, and means for revolving said sprocket-wheels, substantially as described.

7. In a fence-machine, an upright having 5 a series of circular openings from opposite sides of each of which extend slots, one of each pair of slots having a semicircular enlargement 7 communicating with said opening, a journal-bearing secured in each of said 10 openings and comprising a ring having on opposite sides tongues located in said slots and provided with a semicircular offset fitting in said enlargement and with an annular flange bearing against the face of the upright, a series 15 of twisters, each of which comprises a twister-head journaled in said ring and having on opposite sides wire-slots provided with enlarged openings and a sprocket-wheel bolted to said twister-head and abutting 20 against the flange of said ring and having enlarged wire-openings, and means for revolving the sprocket-wheels, substantially as described.

8. In a fence-machine, in combination with 25 an upright having a series of twisters revolvably mounted thereon and having a longitudinal slot, an arm having at one end an aperture and a widened portion provided with a horizontally-disposed curved slot, bolts 30 passed through said aperture and curved slot, respectively, and through the slot in the upright and secured by nuts, and means mounted on the opposite end of said arm for operating said twisters, substantially as described.

9. In a fence-machine, an upright having 35 a series of twisters revolvably mounted thereon each of which is provided with a sprocket-wheel, an arm mounted at one end on said upright and at its opposite end having a stud 40 provided with an aperture extending through the arm, a driving sprocket-wheel journaled on said stud and provided near opposite edges with an outwardly-extending projection and a stud, respectively, a crank-arm having a 45 flattened extension journaled on said first-named stud and provided with an aperture

for receiving said last-named stud and in its end with a recess for receiving said projection, a washer, and a bolt passed through said washer and stud and secured by a nut, and a 50 sprocket-chain passed about said driving sprocket-wheel and the sprocket-wheels of the twisters, substantially as described.

10. In a fence-machine, in combination with the upright having a slot at its lower 55 end, a picket-rest comprising an apertured plate inserted in said slot and having a plate extending at right angles thereto for supporting the pickets, an upright flange formed integral with said plates and adapted to bear 60 against the face of the upright, and a bolt passed through the upright and said first-named plate, substantially as described.

11. A wire-straining device for the purpose described, comprising a block having a cor- 65 rugated upper surface, each of which corrugations is provided centrally of its bed with an aperture, a tension-plate bent to conform to the curvatures of said block and having similar apertures, bolts passed through the 70 apertures in said tension-plate and block and having each a transverse head, a nut on each bolt, and means for anchoring said block.

12. A wire-straining device for the purpose described comprising a block provided with 75 wire-grooves at its ends and having a corrugated upper surface, a tension-plate bent to conform to the curvatures in said block and means for clamping said plate on said block, projections on said block forming guards for 80 said wire-grooves, integral, parallel arms projecting from one end of said block in the space between the grooves at that end, and a grooved pulley journaled between said arms, substantially as described. 85

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

WILLIAM F. SEARGEANT.

Witnesses:

HENRY P. BRYANT,
CLAY PERKINS.