No. 622,550. Patented Apr. 4, 1899.

J. W. SINNICKSON & B. F. MEYER.

MACHINE FOR SECURING NECK WIRES TO BOTTLES.

(Application filed Dec. 21, 1898.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 3.

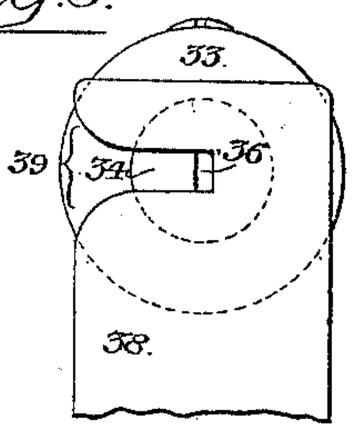

Fig. 4.

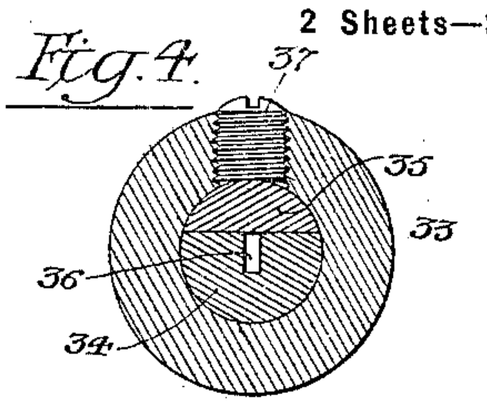

Fig. 1.

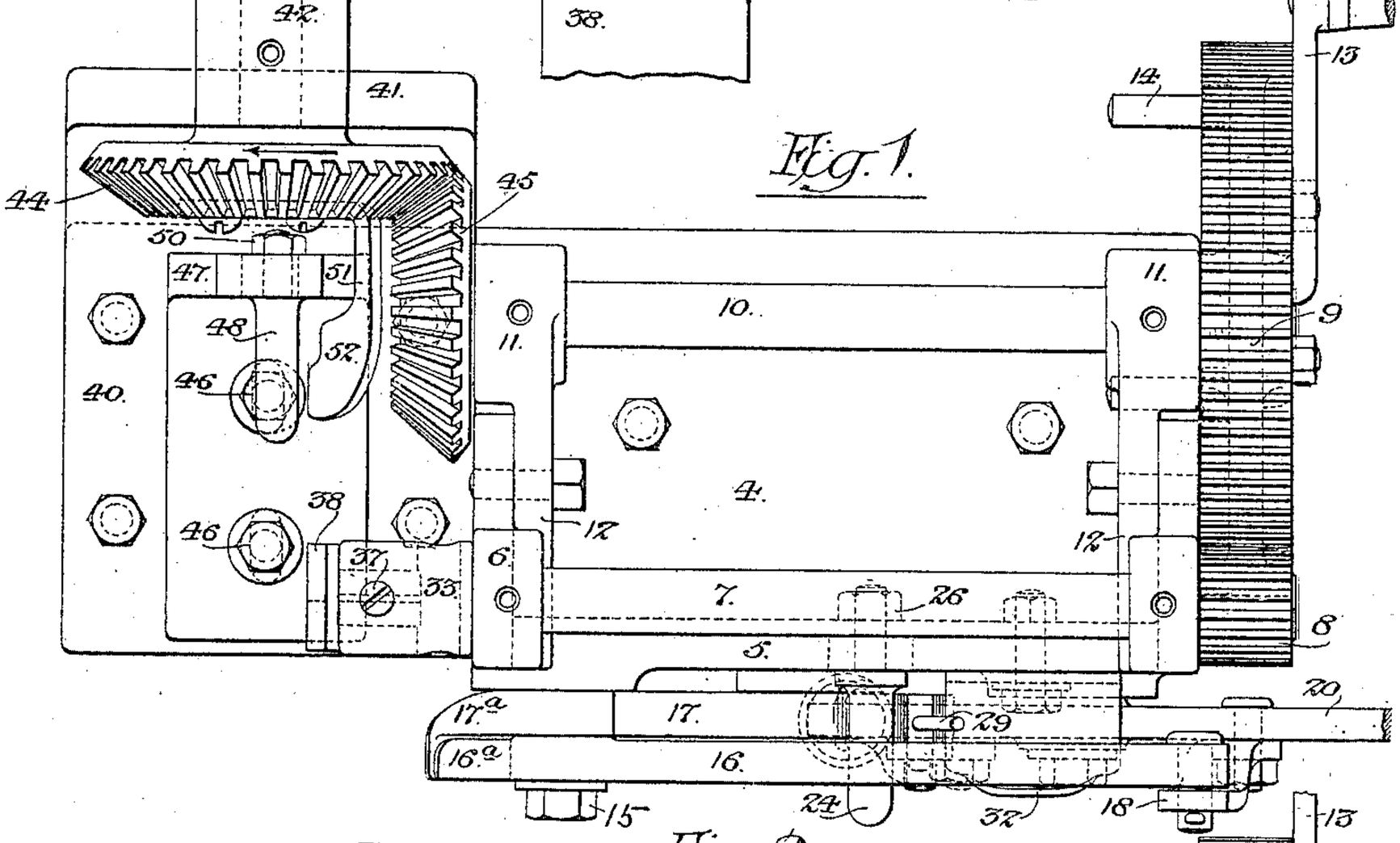

Fig. 2.

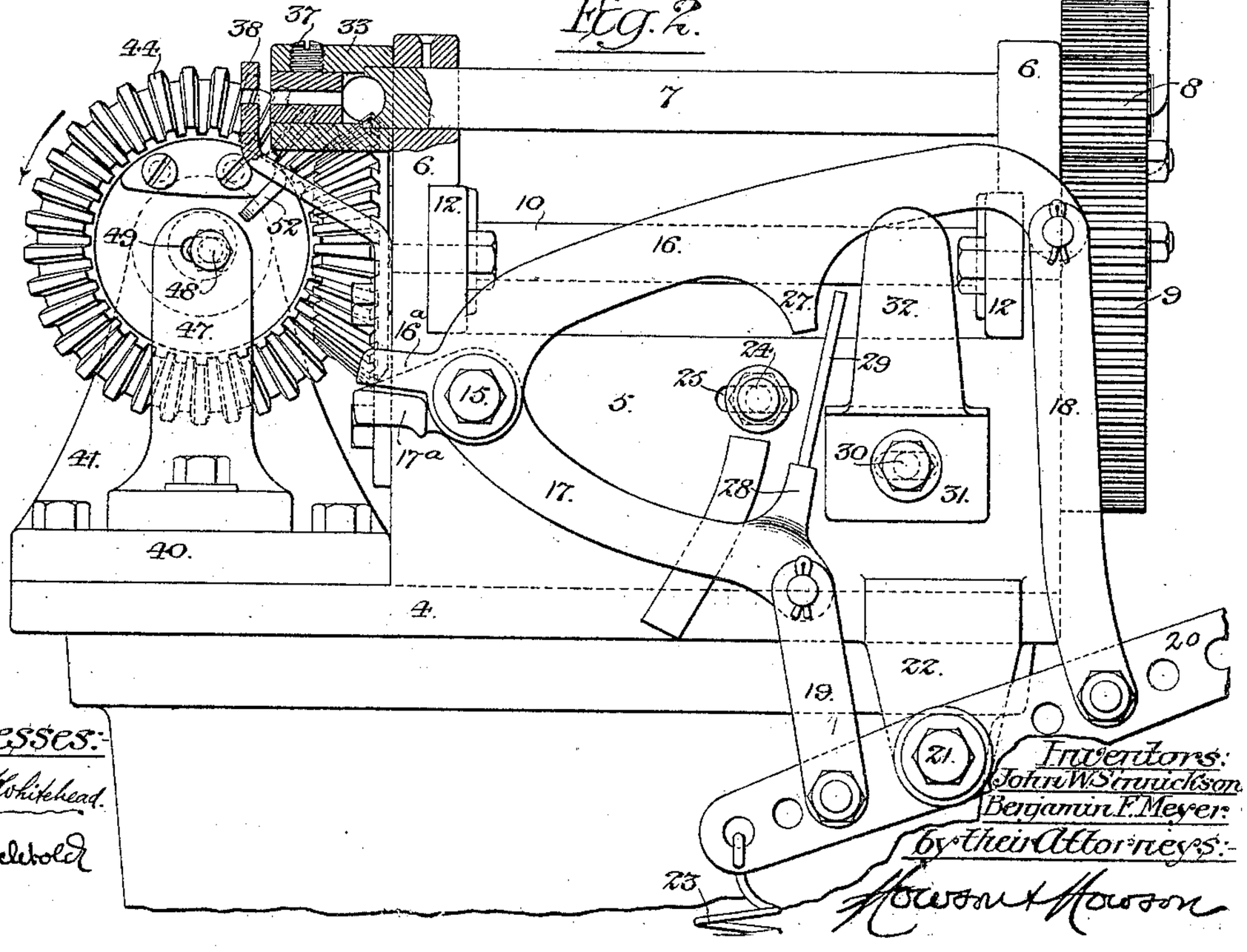

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Fig. 5.

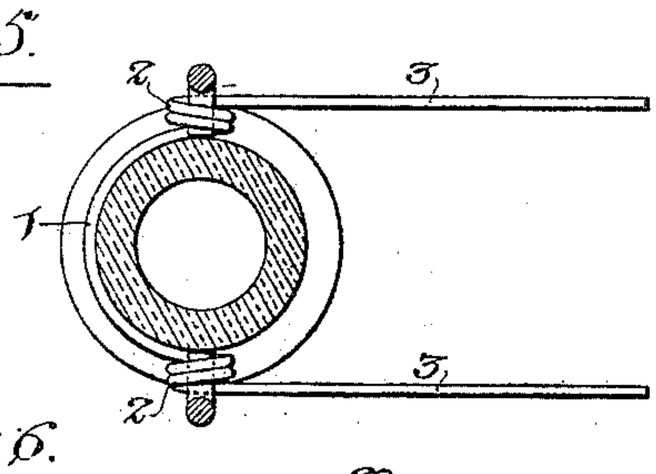


Fig. 6.

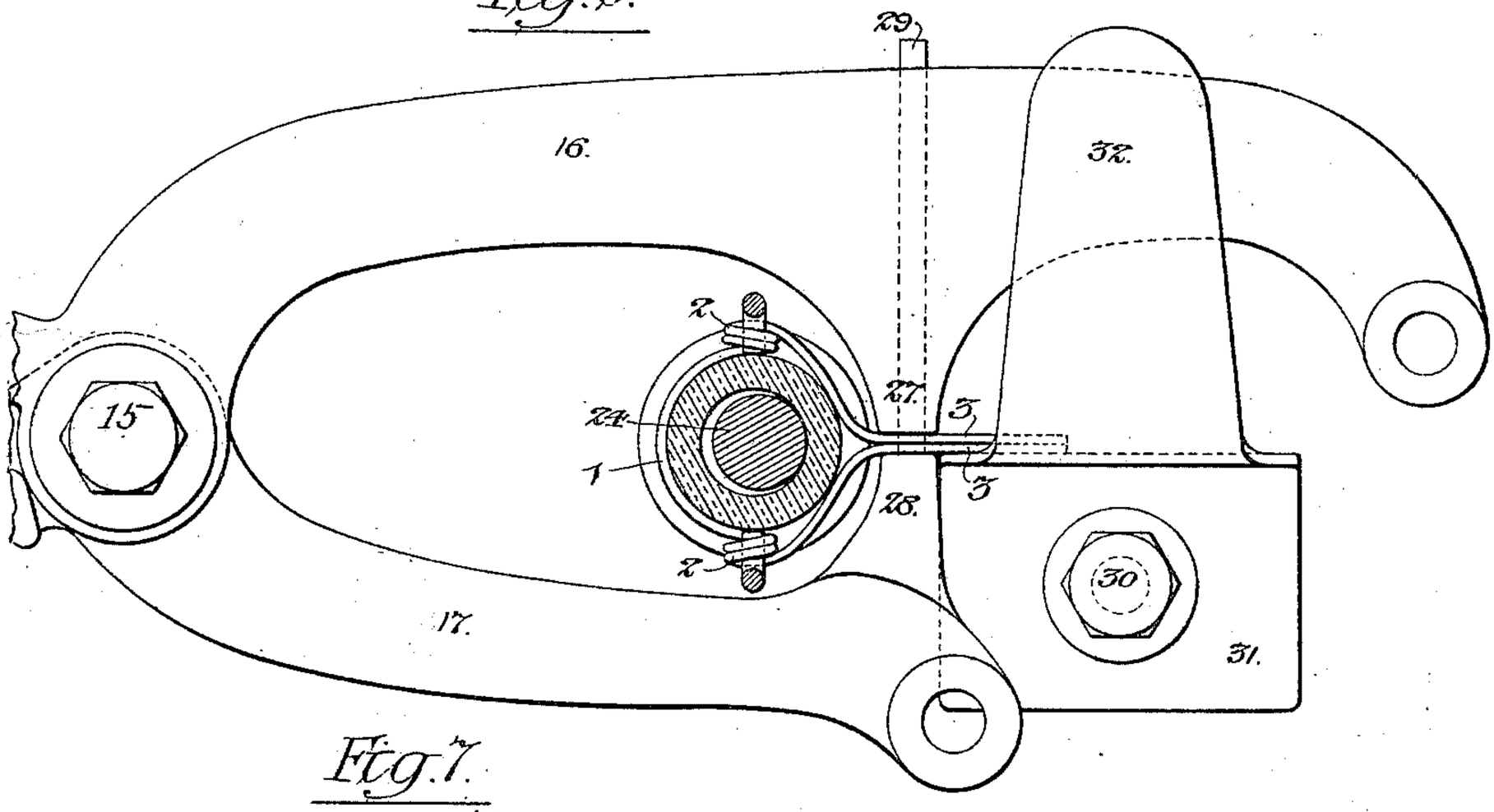


Fig. 7.

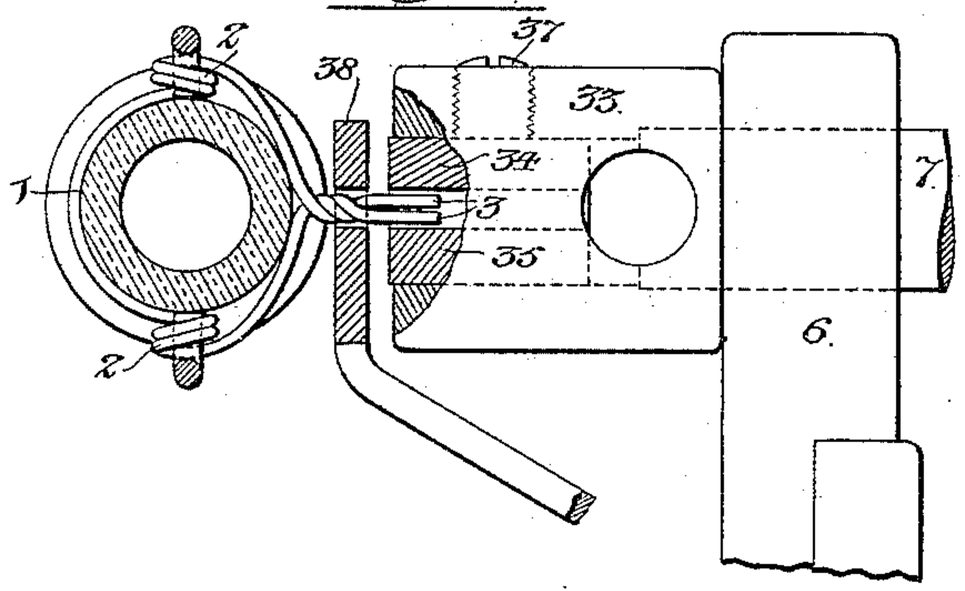
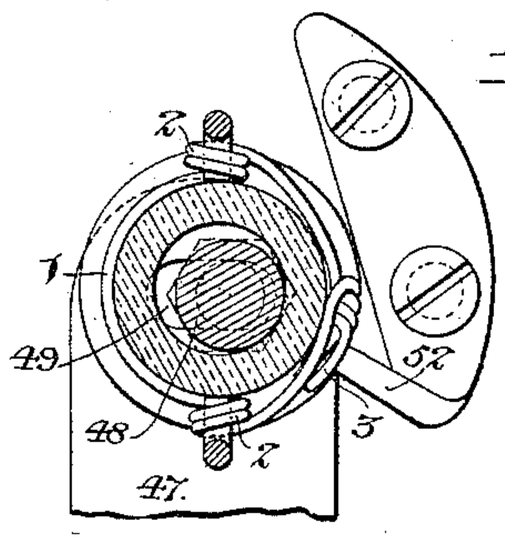


Fig. 8.



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UNITED STATES PATENT OFFICE.

JOHN W. SINNICKSON, OF PHILADELPHIA, PENNSYLVANIA, AND BENJAMIN F. MEYER, OF CAMDEN, NEW JERSEY; SAID MEYER ASSIGNOR TO SAID SINNICKSON.

MACHINE FOR SECURING NECK-WIRES TO BOTTLES.

SPECIFICATION forming part of Letters Patent No. 622,550, dated April 4, 1899.

Application filed December 21, 1898. Serial No. 699,921. (No model.)

To all whom it may concern:

Be it known that we, JOHN W. SINNICKSON, of Philadelphia, Pennsylvania, and BENJAMIN F. MEYER, of Camden, New Jersey, citizens of the United States, have invented certain Improvements in Machines for Securing Neck-Wires to Bottles, of which the following is a specification.

The object of our invention is to provide a simple and effective machine for securing to the neck of a bottle the wire whereby the lever mechanism for operating the stopper is mounted upon said bottle-neck. This object we attain in the manner hereinafter set forth, reference being had to the accompanying drawings, in which—

Figure 1 is a top or plan view of a machine constructed in accordance with our invention. Fig. 2 is a front view of the same. Figs. 3 and 4 are views, on a larger scale, of parts of the mechanism; and Figs. 5, 6, 7, and 8 are views illustrating the successive operations performed by the machine in securing the neck-wire to the bottle.

The wire, as previously prepared for application to the bottle-neck, is shown in Fig. 5, and consists of a loop 1 for partially embracing the bottle-neck, this loop terminating in opposite eyes 2 2, formed by coiling the wire, and said eyes terminating in projecting wires 3 3, which in order to secure the neck-wire to the bottle must be bent around the bottle-neck and twisted together. It is this latter operation which our machine is designed to perform.

The machine has a table or bed 4, which may be secured to a bench or support of any suitable character and which has at the front a vertical web or flange 5 and projecting bearings 6 6 for a shaft 7, the latter having at one end a spur-pinion 8, meshing with a spur-wheel 9 on a shaft 10, which is adapted to bearings 11 in suitable brackets 12, secured to the fixed frame of the machine.

The spur-wheel 9 has a handle 13, whereby it can be readily manipulated, and said spur-wheel has a projecting pin 14, which overlaps the fixed frame of the machine and by contact therewith serves to limit the extent of movement which can be imparted to the wheel 9.

Hung by a bolt 15 to the front web 5 of the fixed frame are a pair of levers 16 and 17, the long arms of these levers being connected, respectively, by links 18 and 19 to a lever 20, hung by means of a bolt 21 to a bracket 22 at the front of the machine. The links 18 and 19 are connected to the lever 20 on opposite sides of the fulcrum 21 of the same, so that movement of said lever in one direction tends to move the levers 16 and 17 toward each other, while movement of the lever 20 in the opposite direction separates said levers 16 and 17, and a spring 23, connected to the lever 20, serves to hold the latter normally in such position that the levers 16 and 17 will be separated, as shown in Fig. 2, the lever 20 being operated by hand or by a suitable treadle connection (not shown) in order to move the levers 16 and 17 toward each other. The levers 16 and 17 have short arms 16^a and 17^a, which constitute an expander whereby the loop of the neck-wire may be opened or spread in case it does not readily admit the neck of the bottle.

Projecting from the web 5 of the machine is a stud 24, which has a stem adapted to a longitudinal slot 25 in said web and secured by means of a suitable nut 26, as shown in Fig. 1, so that the stud 24 may be adjusted to different positions on the web 5.

Each of the levers 16 and 17 has a projecting lug or finger, that of the lever 16 being represented at 27 and that of the lever 17 at 28, and from the latter finger projects upwardly a pin 29.

To the front of the web 5 is secured by means of a bolt 30 a plate 31, which is slotted for the reception of the bolt, so that it can be moved back and forth on the web 5, the upper portion of this plate being bent outwardly and upwardly, so as to form a guard 32 on the outside of the lever 16.

The shaft 7 has secured to it a head 33, containing a pair of die-blocks 34 and 35, as shown in Fig. 4, the die-block 34 having formed in it an oblong rectangular longitudinal recess 36, and the die-block 35 being held in con-

tact with the recessed face of the block 34 by means of a set-screw 37.

In front of the die-carrying head 33 is a guide-plate 38, having a slot 39, with flaring mouth, (see Fig. 3,) this slot terminating in line with the forward edge of the recess 36 in the die-block 34.

Secured to the bed 4 of the machine is a plate 40, with projecting standard 41, which carries a bearing 42 for a shaft 43, and to the latter is secured a bevel-wheel 44, which meshes with a bevel-wheel 45 on the shaft 10.

Secured to the plate 40 by means of bolts 46 is a bracket 47, the base of which is longitudinally slotted for the reception of the bolts 46, so that said bracket can be adjusted toward and from the face of the bevel-wheel 44, and from said bracket projects a stud 48, having a stem adapted to a transverse slot 49 in the bracket and secured by means of a nut 50, so that transverse adjustment of said stud on the bracket is permitted.

Secured to the face of the bevel-wheel 44 is a projecting arm 51, which terminates at the outer end in a finger 52, which in the present instance consists simply of the widened or thickened outer portion of the arm 51, as shown in Fig. 1.

The operation of the machine is as follows: The neck-wire is first applied to the neck of the bottle, as shown in Fig. 5, the loop 1 being first spread, if necessary, by means of the arms 16^a 17^a in order to enable it to receive the neck. The mouth of the bottle is then applied to the stud 24, the wires 3 3 projecting between the pin 29 and the guard-plate 32. The lever 20 is then operated so as to cause the levers 16 17 to approach each other. Hence the fingers 27 28 act upon the projecting wires 3 3 and bend them around the neck of the bottle until they are brought together, as shown in Fig. 6. The bottle is then removed from the stud 24 and the ends of the wires are passed into the slot 39 of the plate 38, the flaring mouth of said slot serving to force the ends of the wires toward each other in the event of their having spread after being subjected to the action of the levers 16 17. The ends of the wires are then projected into the recess 36 of the die 34, and the handle 13 of the spur-wheel 9, which has hitherto occupied the rear position shown in Figs. 1 and 2, is now brought forward to an extent permitted by the contact of the pin 14 with the fixed frame of the machine. This movement of the spur-wheel 9 is sufficient to impart a series of rotative movements to the shaft 7, and as the ends of the neck-wire are confined in the recess 36 of the die 34 the rotation of said die imparts the desired twist to the neck-wire, as shown in Fig. 7. The forward movement of the spur-wheel 9 effects movement of the bevel-wheel 44 in the direction of the arrow, Figs. 1 and 2, so as to carry the finger 52 from the forward position there shown to a rearward position, and the mouth of the bottle is now applied to the stud 48, so that the twisted and projecting ends of the neck-wire are brought into the path of the finger 52 as the same is brought forward in moving the spur-wheel 9 back to its original position. It will be observed on reference to Fig. 2 that the axis of the stud 48 is eccentric in respect to the axis of the bevel-wheel 44. Hence as the finger 52 travels forward it approaches the neck of the bottle, and thus not only turns down the twisted and projecting ends of the neck-wire, but presses the same close in against the neck of the bottle, as shown in Fig. 8. The amount of inward pressure imparted to the ends of the neck-wire is dependent upon the degree of eccentricity of the stud 48 in respect to the axis of the bevel-wheel 44, and this can be varied as desired by adjustment of the stud in the transverse slot 49.

By making the twister-die in two pieces, as shown in Fig. 4, the construction of the same is simplified and cheapened, since the recess 36 can be formed more readily than could a slot in a solid die, and when the recess becomes worn this defect may be readily remedied by grinding off the face of the die-block 34 to the desired extent.

By the use of the guide-plate 38 with its flaring slot we are enabled to bring the projecting ends of the neck-wire into proper position for entering the recess of the die without necessitating the pressing together of the said neck-wire with the fingers, thereby facilitating the operation of the machine to that extent.

Having thus described our invention, we claim and desire to secure by Letters Patent—

1. In a machine for securing neck-wires to bottles, the combination of a support for the bottle-neck, with a pair of pressing-fingers mounted so as to move toward and from each other in such relation to the bottle-neck support as to press together the projecting ends of the neck-wire, substantially as specified.

2. In a machine for securing neck-wires to bottles, the combination of a bottle-support, with a pair of pressers mounted so as to approach and recede from each other in such relation to said support as to press together the projecting ends of the neck-wires, and a stop-pin for holding said wires in proper relation to said pressers, substantially as specified.

3. In a machine for securing neck-wires to bottles, the combination of a bottle-support, a pair of pressers mounted so as to move toward and from each other in such relation to the bottle-support as to press together the projecting ends of the neck-wire, a stop-pin for restricting the movement of the neck-wire in one direction, and a guard-plate for confining it in the other direction, substantially as specified.

4. In a machine for securing neck-wires to bottles, the combination of a pair of pivoted arms or levers, having projections constructed to bend the ends of the neck-wire around the

neck of the bottle, and means for vibrating said arms or levers, substantially as specified.

5. The combination of a machine for securing neck-wires to bottles, of a die having an oblong recess to receive the ends of the neck-wires and prevent spreading of the same, a shaft carrying said die, and provision for imparting a number of turns to said shaft, substantially as specified.

6. In a machine for securing neck-wires to bottles, the combination of a shaft, means for imparting a number of turns thereto, and a twisting-die comprising a recessed block, a second block resting upon the face of the recesssed block and closing the mouth of the recess therein, and provision for confining said second block in place, substantially as specified.

7. In a machine for securing neck-wires to bottles, the combination of a rotatable die for twisting the projecting ends of the neck-wire, with a guide mounted in front of said die and having a slot with flaring mouth whereby the ends of the wires are brought into position for entering the die, substantially as specified.

8. In a machine for securing neck-wires to bottles, the combination of a projecting pin for entering the open mouth of the bottle and supporting the same with a swinging finger for bending down alongside of the bottle-neck the twisted and projecting ends of the neck-wire, substantially as specified.

9. In a machine for securing neck-wires to bottles, the combination of a bottle-support, and a swinging finger for bending down alongside of the neck the twisted and projecting ends of the neck-wire, said finger swinging around an axis which is eccentric to the axis of the bottle-support, substantially as specified.

10. In a machine for securing neck-wires to bottles, the combination of a die for twisting the projecting ends of the neck-wire, a finger for bending down alongside the bottle-neck the twisted and projecting ends of said wire, and gearing for operating the twisting-die and bending-finger, substantially as specified.

11. In a machine for securing neck-wires to bottles, the combination of a die for twisting the projecting ends of the neck-wire, a finger for bending down alongside of the bottle-neck the twisted and projecting ends of said wire, and gearing for operating said twisting-die and bending-finger, said gearing being so disposed that the bending-finger is caused to act as the twisting-die is being restored to position for its next operation, substantially as specified.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

JOHN W. SINNICKSON.
BENJAMIN F. MEYER.

Witnesses to the signature of John W. Sinnickson:

WILL. A. BARR,
F. E. BECHTOLD.

Witnesses to the signature of Benj. F. Meyer:

JAMES C. PURDY,
SAMUEL F. SMITH.