

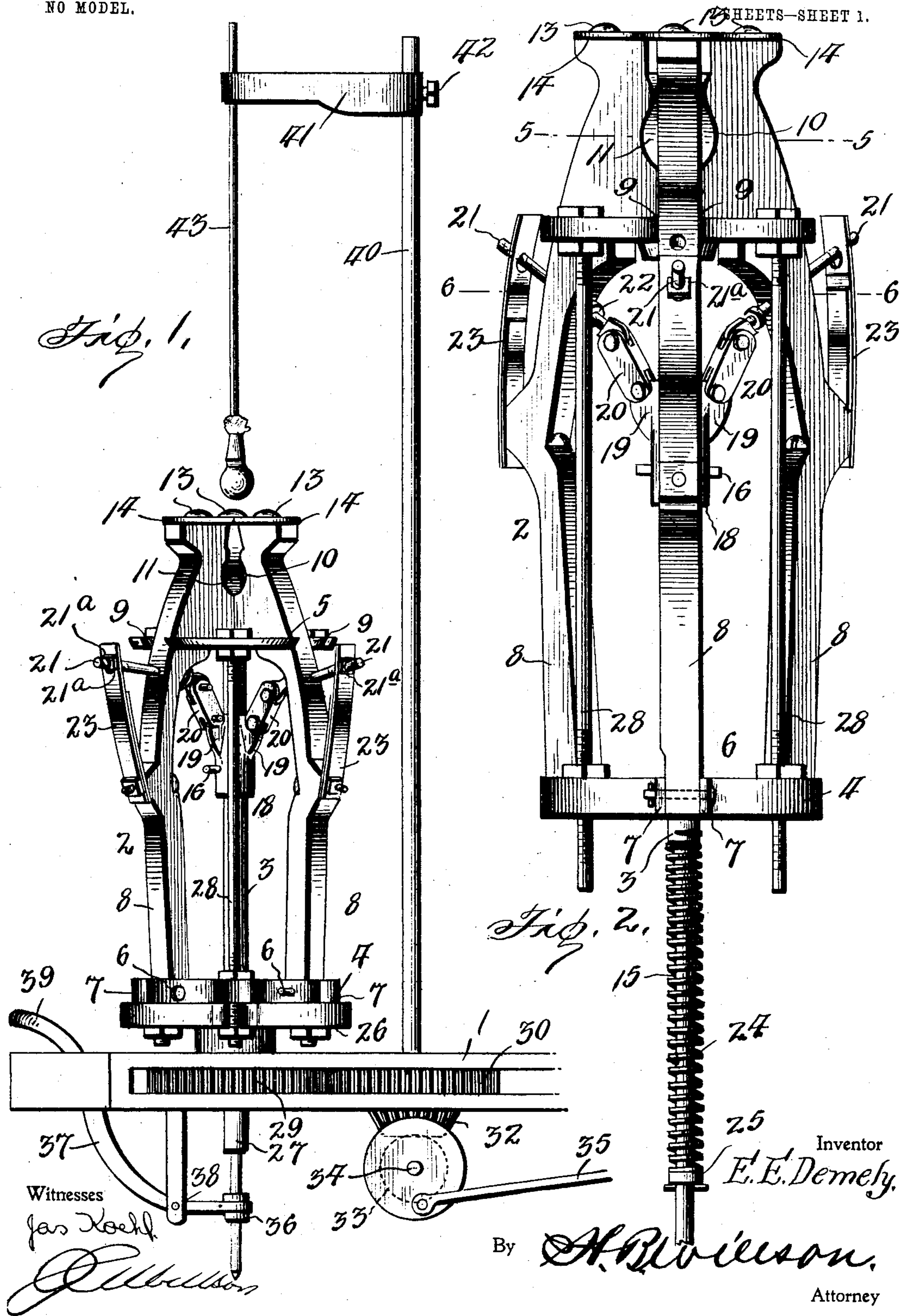
No. 771,421.

PATENTED OCT. 4, 1904.

E. E. DEMELY.
MACHINE FOR MAKING SEAMLESS STOPPERS.

APPLICATION FILED NOV. 16, 1903.

NO MODEL.



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2 SHEETS—SHEET 2.

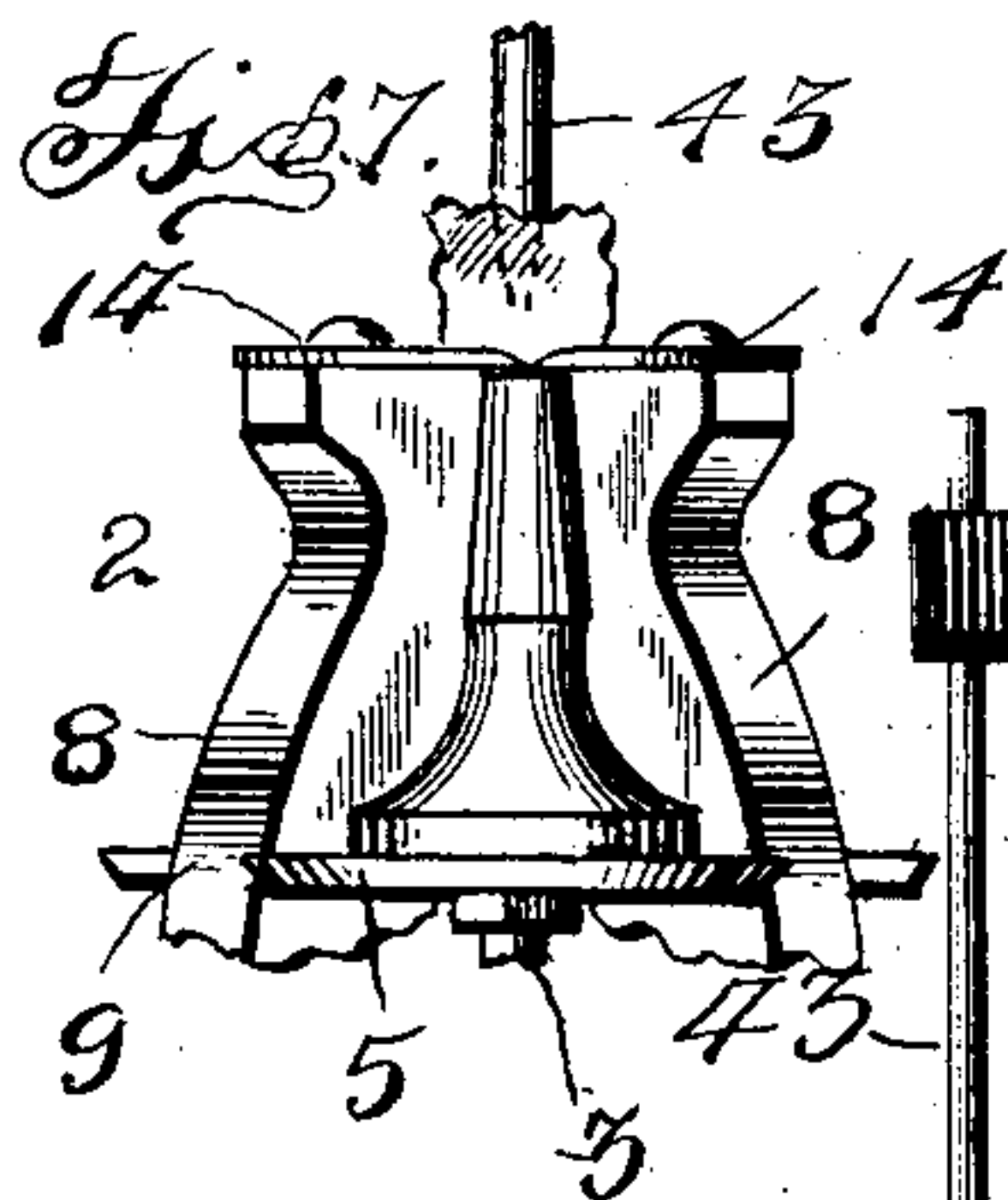
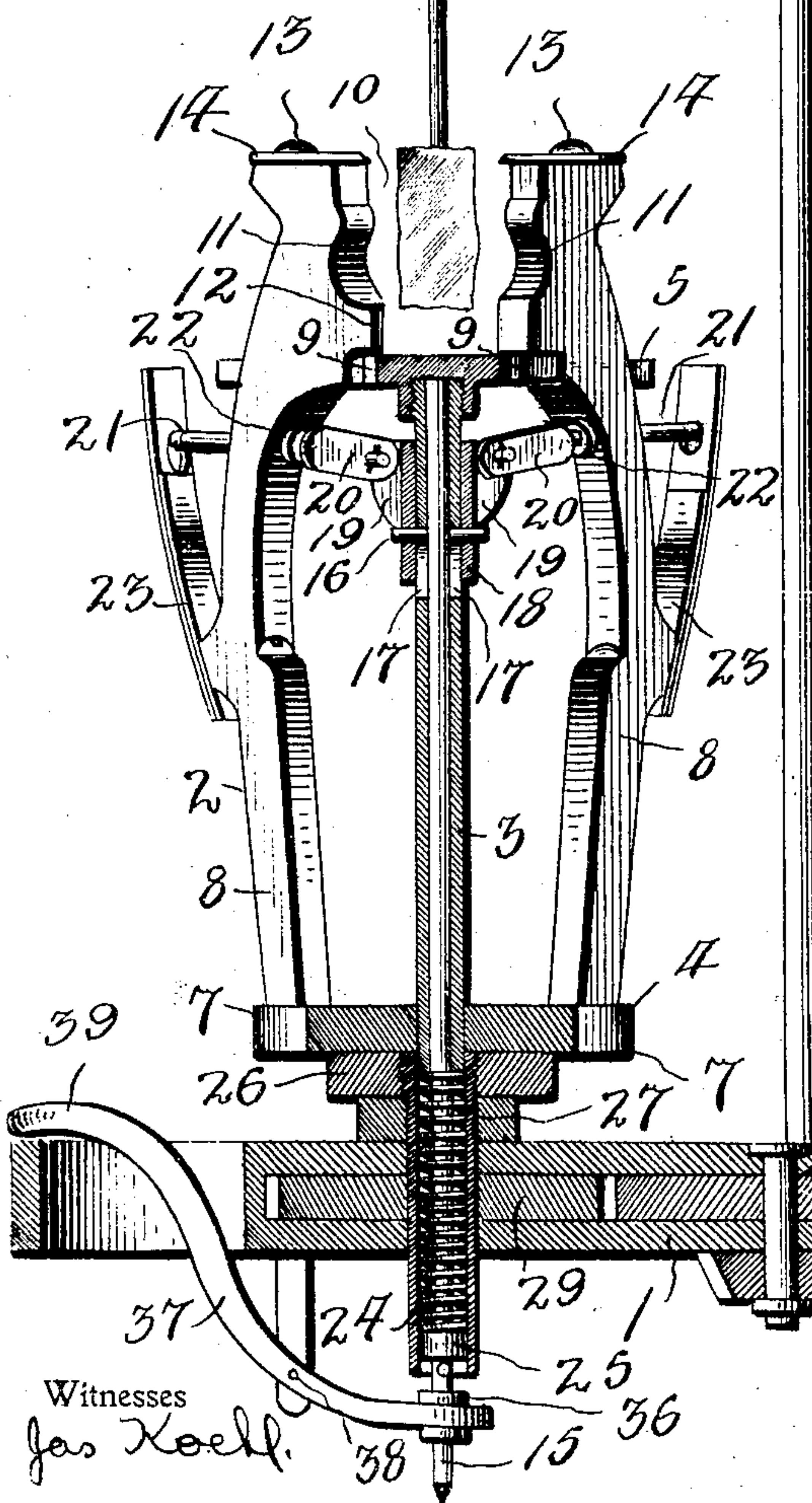


Fig. 3.



Witnesses
Jas Koell.

J. Wilson

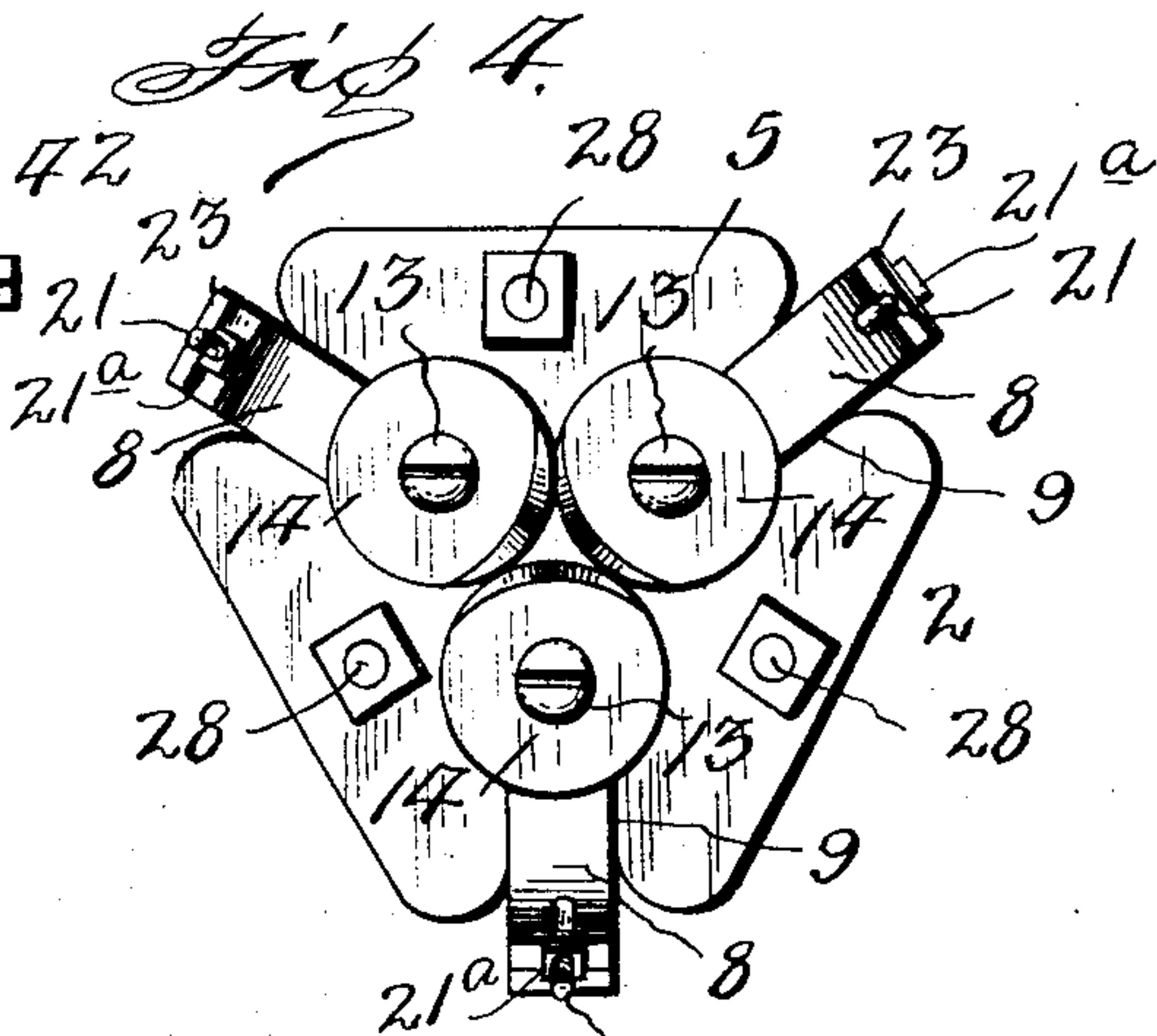
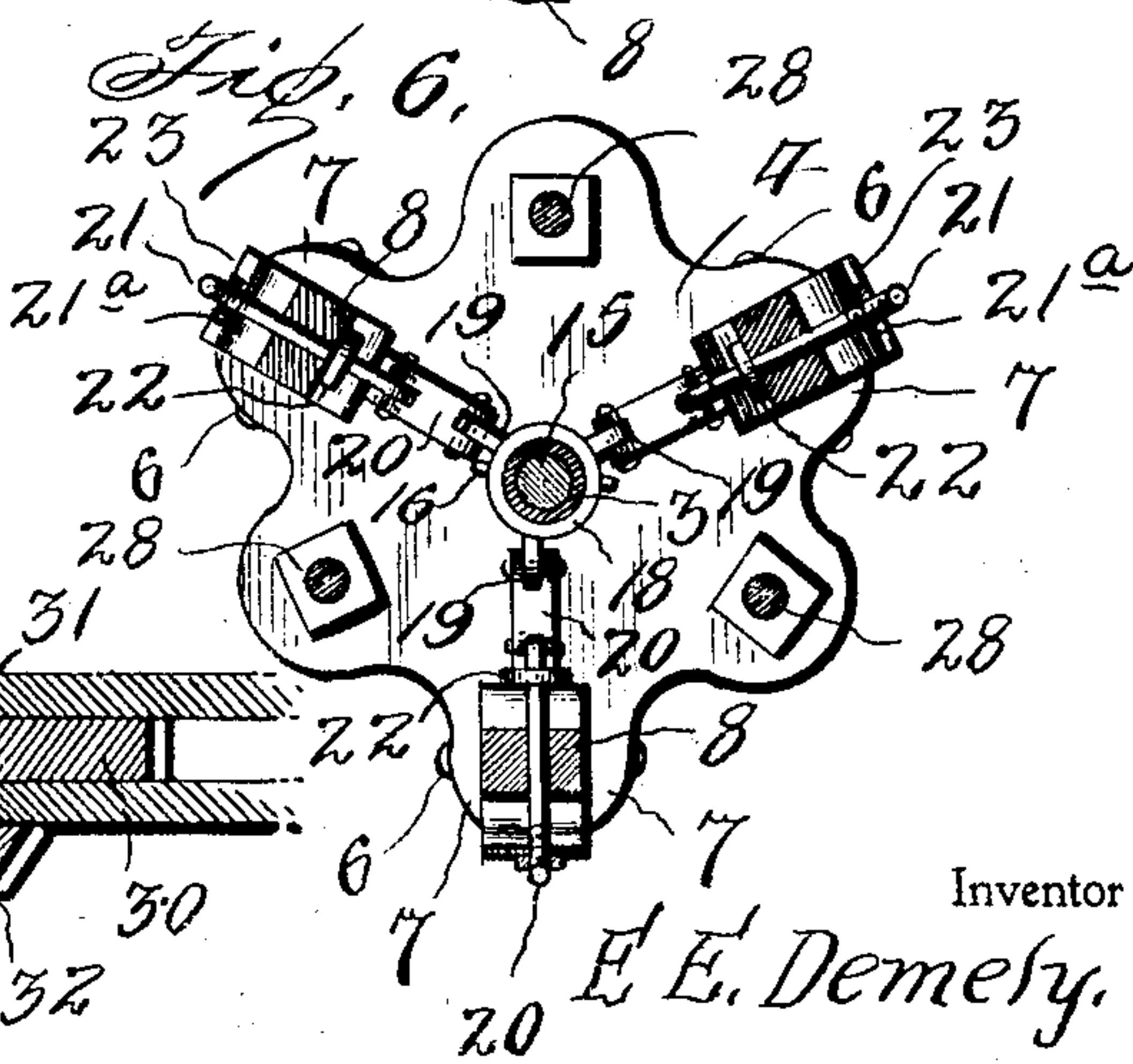
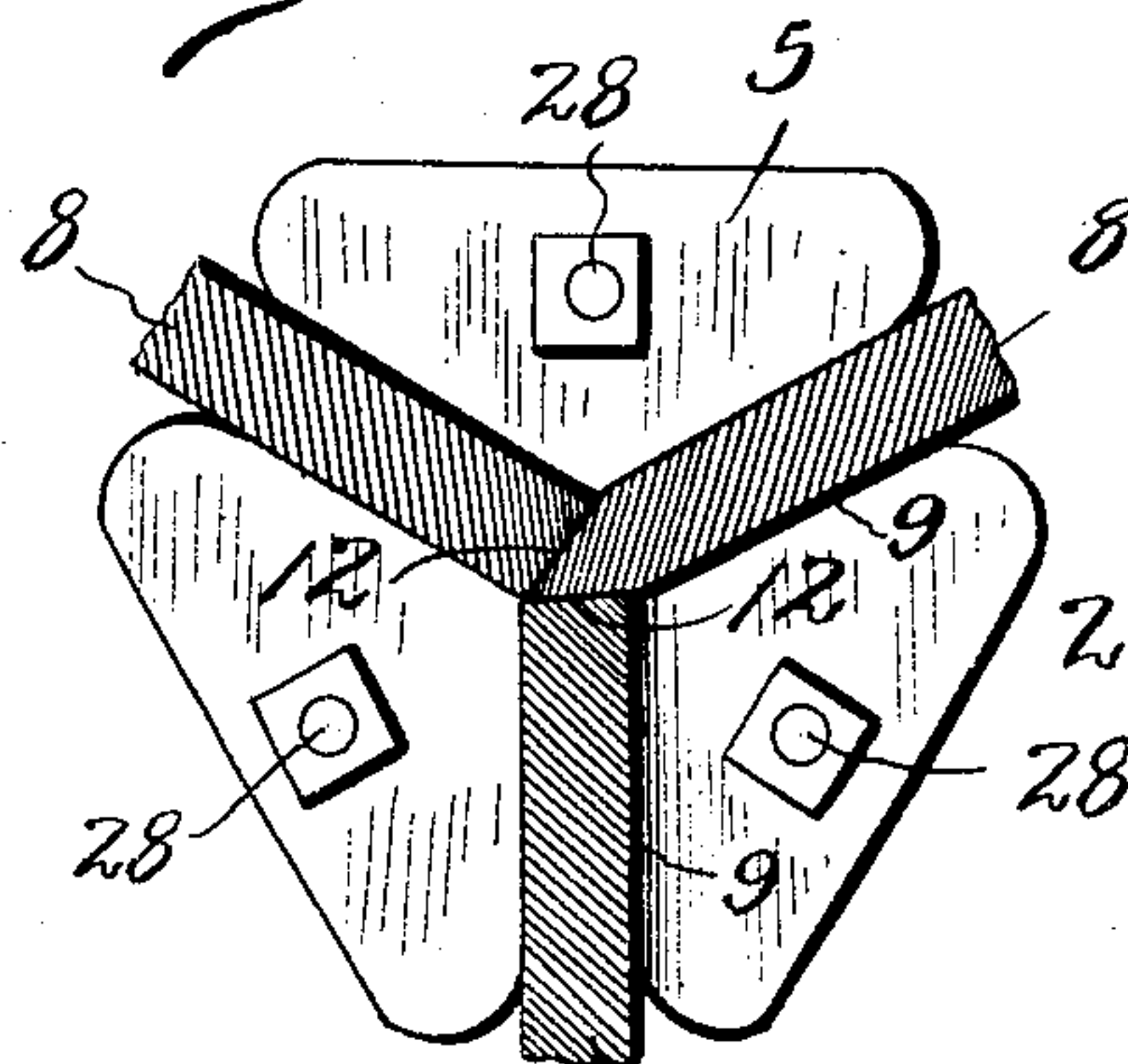


Fig. 5.



Inventor

E. E. Demely.

By

A. Wilson

Attorney

UNITED STATES PATENT OFFICE.

EMIL ERNEST DEMELY, OF WESTPORT, MARYLAND.

MACHINE FOR MAKING SEAMLESS STOPPERS.

SPECIFICATION forming part of Letters Patent No. 771,421, dated October 4, 1904.

Application filed November 16, 1903. Serial No. 181,389. (No model.)

To all whom it may concern:

Be it known that I, EMIL ERNEST DEMELY, a citizen of the United States, residing at Westport, in the county of Baltimore and State of Maryland, have invented certain new and useful Improvements in Machines for Making Seamless Stoppers; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to a machine for forming seamless bottle-stoppers or similar articles of glass or the like.

The object of my invention is to provide a machine of this character which will be simple and comparatively inexpensive in construction, durable in use, and very efficient in operation.

With this and other objects in view the invention consists of certain novel features of construction, combination, and arrangement of parts, as will be more fully described, and particularly pointed out in the appended claims.

In the accompanying drawings, Figure 1 is a front elevation of a machine embodying my invention. Fig. 2 is a side elevation of the rotating head, showing the same removed from the table or support of the machine. Fig. 3 is a vertical central sectional view through the same and a portion of the support, showing the forming-jaws separated. Fig. 4 is a top plan view of the rotating head. Figs. 5 and 6 are horizontal sectional views taken, respectively, on the lines 5 5 and 6 6 of Fig. 2. Fig. 7 is a detail view of a modified form of my invention.

In the embodiment of my invention as illustrated in the drawings the numeral 1 denotes a suitable support or table of any desired construction, upon which a rotating head 2 is mounted. Said rotating head comprises a central hollow or tubular shaft 3, to the lower end of which is secured an attaching-plate 4 and to its upper end a guide-plate 5. Pivoted at their lower ends, as at 6, between ears or lugs 7, formed on the attaching-plate 4 at equidistant points from each other and from the center shaft 3, are three carrying-arms 8,

disposed vertically and having their upper ends projecting through radially-disposed slots 9 in the guide-plate 5, which guide them in their swinging movement toward and from each other and the center line or axis of the head. Said arms 8 are provided at their upper ends above the guide-plate 5 with forming-jaws 10, the inner faces 11 of which are of the contour it is desired to have the bottle-stopper or other article to be made by the machine. The inner faces of the forming-jaws immediately below the forming or shaping faces 11 are beveled, as clearly shown at 12 in Fig. 5, to cause said jaws to aline concentrically when in their closed position. As previously stated, the faces of the forming-jaws may be of any desired shape; but when the stopper or other article is to have a flat top or end the said flat end is preferably formed upon the top of the guide-plate 5, as clearly shown in Fig. 7 of the drawings. Secured upon the upper ends of the jaws 10 by screws or other fastening means 13 are cutters 14 in the form of circular disks, the cutting edges of which are adapted to partially sever the stopper or other article being formed from the mass of material of which it is made. In order to actuate said arms 8 and the forming-jaws 10, which they carry, an operating-rod 15 is slidably disposed within the hollow center shaft 3 of the rotating head. The upper end of said rod 15 is attached by means of a cross-pin 16, which projects through longitudinally-disposed slots 17 in said hollow shaft, to a sleeve 18, slidably mounted on the shaft 3 between the plates 4 and 5. Said sleeve is formed with three ears 19, to which one end of each of three toggle-levers 20 is pivoted. The opposite ends of the toggle-levers are pivotally connected to the inner end of pins 21, which project through apertures or openings in the arms 8. Said pins are formed with shoulders 22 by reducing the portions which project through the arms, and said shoulders are held against the inner faces of the arms by flat springs 23, one end of each of which is adjustably attached to the outer end of one of the pins 21 by means of nuts 21^a, and the other end of each of said springs is secured upon the outer face of one of the arms 8, as

shown. By this construction it will be seen that the arms will be permitted to have an outward-swinging movement independent of that which they receive from the toggle-levers 5 when the operating-rod 15 is elevated.

In order to hold the arms 8 in their closed or normal position, a coil-spring 24 is confined on the lower portion of the operating-rod between the under side of the attaching-plate 4 and a fixed collar 25. Said spring 24 exerts its energy to force the rod 15 downwardly and draw the toggle-levers inwardly, the springs 23 holding the arms against the shoulders of the pins carried by the toggle-levers, as previously described.

The head 2 may be rotatably mounted in any desired manner; but I preferably secure to the under side of the attaching-plate 4 a plate 26, which carries a depending sleeve or tubular shaft 27, which is adapted to surround a portion of the lower end of the operating-rod 15 and the coil-spring 24. Said plates 4 and 26 are secured together by tie-bolts 28, which pass through apertures in plates 4 and 25 5, and through slots in the plate 26. These bolts space the plates 4 and 5, and thus strengthen the head 2, as will be readily understood. The sleeve or hollow shaft 27 is revolubly mounted in the table or support 1 and has attached to it a gear or pinion 29, which meshes with a gear 30, secured upon a vertical shaft 31. Said shaft 31 also carries a beveled gear 32, which meshes with a similar gear 33 upon one end of a horizontal shaft 34. 35 denotes a pitman-rod attached to said gear, by means of which it may be rotated from any suitable source of power.

The operating-rod 15 may be controlled by either a hand or foot lever. As shown in Fig. 40 1 of the drawings, a grooved collar 36 is secured to the lower end of said rod and engaged by the forked end of a hand operating-lever 37, which is pivoted at 38 between lugs depending from the under side of the table 1. The handle 39 of said lever projects above the surface of said table and is within convenient reach of the operator of the machine.

In order to hold or support the glass or other material in the machine, a vertical standard 50 or upright 40 is provided upon the table adjacent to the rotating head. Slidably mounted upon said standard is an arm 41, (one or more, as desired,) which is adapted to be adjusted and fastened at any desired elevation by a set-screw 42. The outer end of said arm is formed with a jaw disposed in line with the center of the rotating head and adapted to receive the rod 43, upon the lower end of which is held the glass from which the bottle-stopper is to 60 be made.

The operation of my invention is as follows: By means of the gearing previously described or by any suitable means the head 2 is rapidly rotated either to the right or left, or, if so desired, alternately in both directions. The

hand-lever is then depressed to force the forming-jaws apart, and the molten glass, which is gathered on the end of the rod 43 and rolled on a plate or partly shaped, is inserted between the open jaws, the upper end of the 70 rod 43 being then attached to the arm 41, which has been adjusted at the proper elevation. The hand-lever is then gradually released, so that the coil-spring 24 will lower the operating-rod 15 and draw the jaws together upon the glass. The rotation of the 75 forming-jaws about the body of rapidly-cooling glass will shape the same, as will be readily understood.

It will be seen that by means of my machine 80 seamless glass bottle-stoppers, which have formerly been made by hand, may be formed and finished in a simple and inexpensive manner.

From the foregoing description, taken in connection with the accompanying drawings, 85 the construction and operation of the invention will be readily understood without requiring a more extended explanation.

Various changes in the form, proportion, and the minor details of construction may be 90 resorted to without departing from the principle or sacrificing any of the advantages of this invention.

Having thus fully described my invention, what I claim, and desire to secure by Letters 95 Patent, is—

1. In a machine of the character described, the combination of a suitable support, a head rotatably mounted thereon, radially-swinging spring-arms carried by said head and provided 100 with forming-jaws, cutters carried by said arms, means for swinging said arms to cause the jaws to move toward and from each other, and means for rotating said head, substantially as described. 105

2. In a machine of the character described, the combination of a suitable support, a head rotatably mounted thereon, arms pivoted upon said head and provided with forming-jaws, cutters upon said arms at the ends of said forming-jaws, means for positively forcing said 110 arms outwardly away from each other, springs for holding said arms in engagement with said forcing means and means for rotating said head, substantially as described. 115

3. In a machine of the character described, the combination with a suitable support, of a rotating head mounted thereon and comprising a hollow central shaft, plates at each end of said shaft, arms pivotally connected to one 120 of said plates and guided in radial slots in the other of said plates, forming-jaws upon said arms, a sliding sleeve upon said hollow shaft, a toggle-lever connection between said arms and said sliding sleeve, and an operating-rod 125 in said hollow shaft for actuating said sliding sleeve, substantially as described.

4. In a machine of the character described, the combination with a suitable support, of a rotating head mounted thereon and compris- 130

ing a hollow central shaft, plates at each end
of said shaft, arms pivotally connected to one
of said plates and guided in radial slots in the
other of said plates, forming jaws upon said
5 arms, a sliding sleeve upon said hollow shaft,
spring-attached pins upon said arms, toggle-
levers connecting said pins and said sliding
sleeve and a sliding operating-rod in said hol-
low shaft for actuating said sliding sleeve, sub-
10 stantially as described.

5. In a machine of the character described,
the combination of a suitable support, a hol-
low shaft rotatably mounted thereon and car-
rying a plate at one end, means for rotating
15 said shaft, a head or frame secured to said
plate and comprising a central hollow shaft
having plates at each end, arms pivoted to one
of the plates of said head and guided radially
in slots in the other of the plates of said head

forming-jaws upon said arms, a sliding sleeve 20
upon the central shaft of said head, toggle-
levers pivoted to said sleeve and having a
spring connection with said arms, an operat-
ing-rod projecting through said hollow shafts
and having its upper end connected to said 25
sliding sleeve, a spring upon said rod for forc-
ing it in one direction, and means for forcing
said rod in the opposite direction against the
tension of said spring, substantially as de-
scribed. 30

In testimony whereof I have hereunto set
my hand in presence of two subscribing wit-
nesses.

EMIL ERNEST DEMELY.

Witnesses:

E. W. HARTLOVE,
FILLMORE COOK.