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No. 803,799.

PATENTED NOV. 7, 1905.

F. A. VOELKE.
HOLLOW PATTERN FORMING MACHINE.

APPLICATION FILED APR. 27, 1904.

FIG. 1.

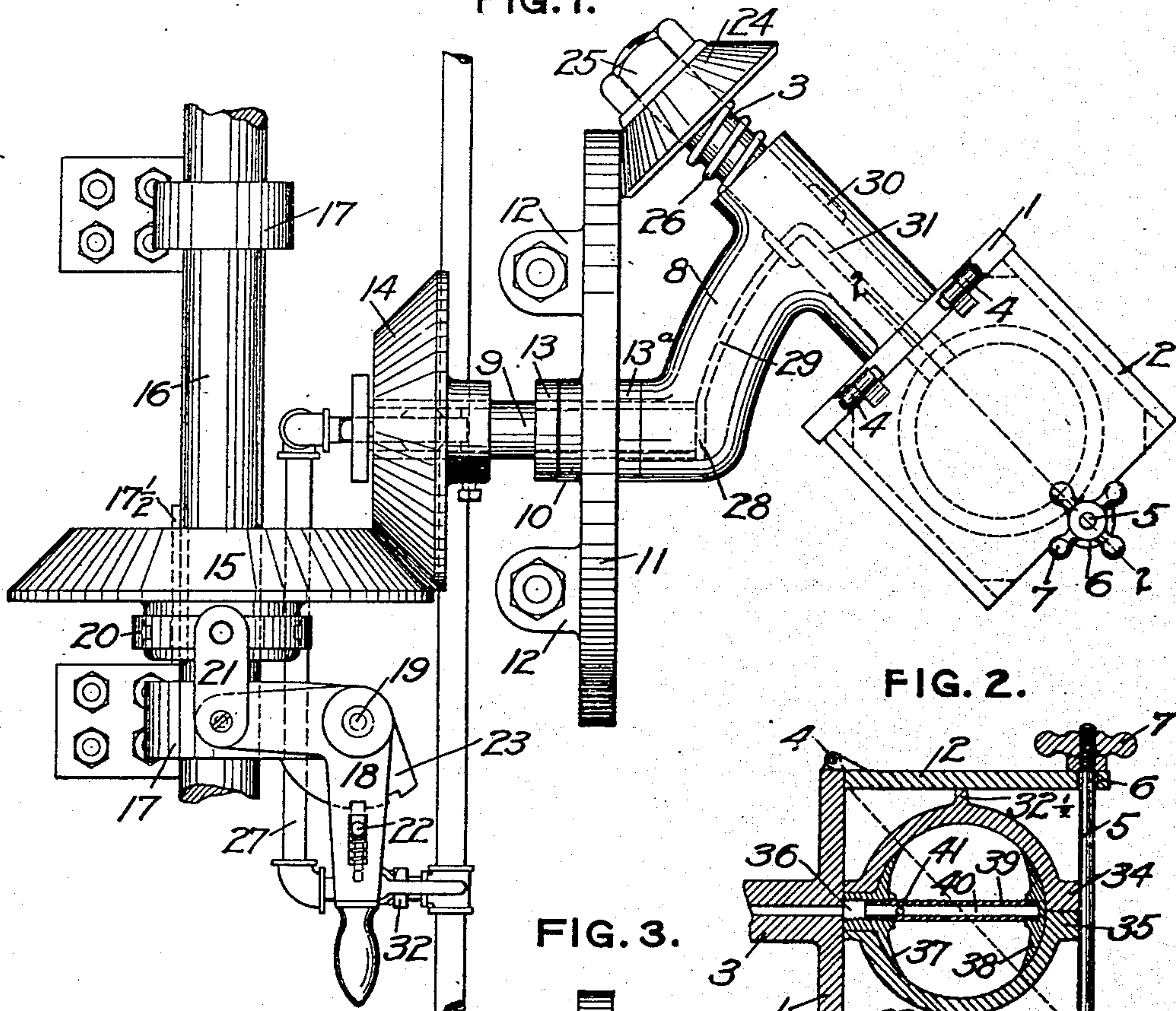


FIG. 2.

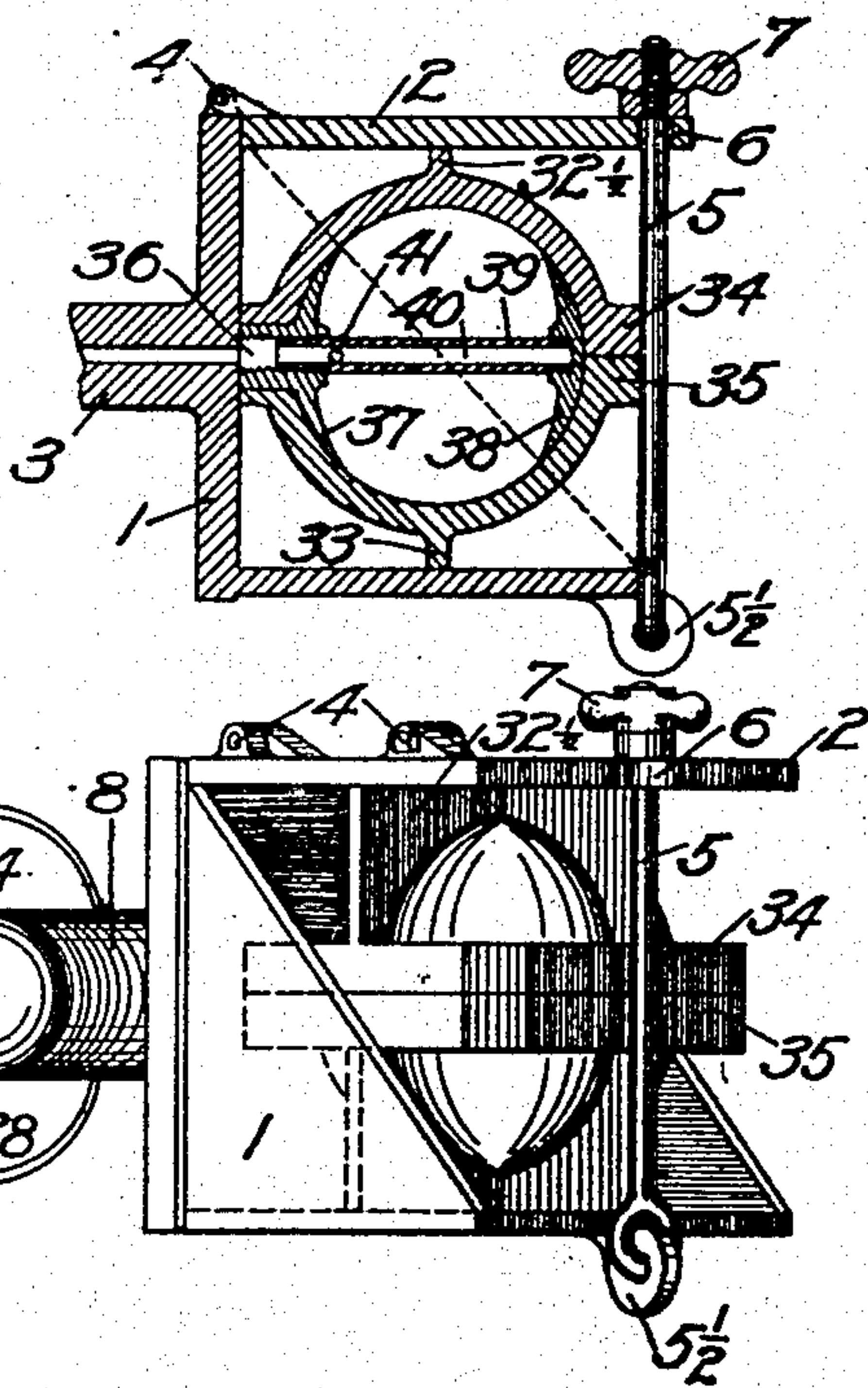
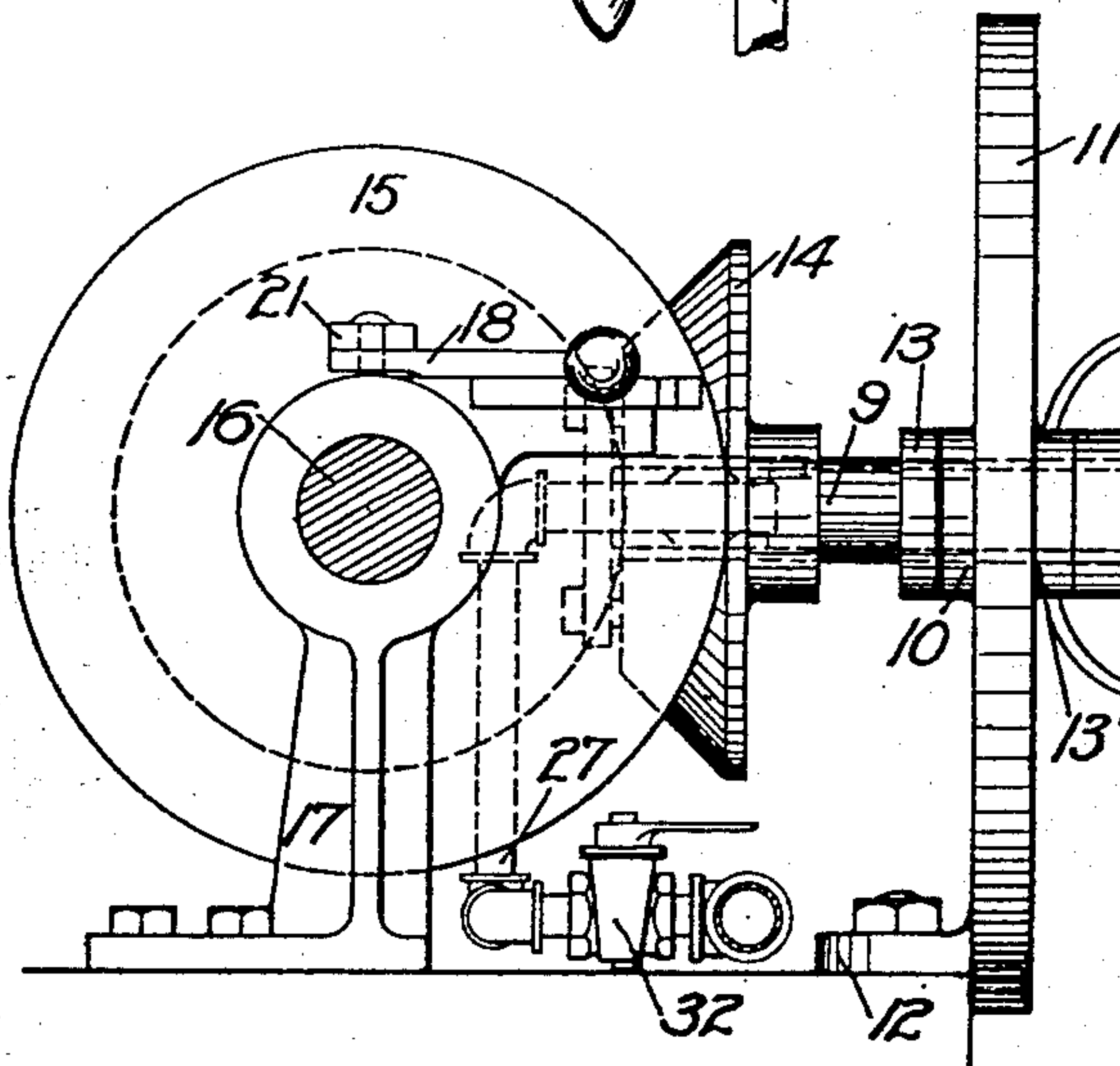


FIG. 3.



Witnesses:
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UNITED STATES PATENT OFFICE.

FRED A. VOELKE, OF TIPTON, INDIANA.

HOLLOW PATTERN-FORMING MACHINE.

No. 803,799.

Specification of Letters Patent.

Patented Nov. 7, 1905.

Application filed April 27, 1904. Serial No. 205,232.

To all whom it may concern:

Be it known that I, FRED A. VOELKE, a citizen of the United States, and a resident of Tipton, in the county of Tipton and State of Indiana, have invented certain new and useful Improvements in Hollow Pattern-Forming Machines, of which the following is a specification.

This invention relates to hollow pattern-forming machines, and is particularly adapted to rotate molds while fusible material in a fused condition within them is cooling, so that such fusible material shall be thrown outwardly against all parts of the interior surface of the mold with sufficient force and uniformity to secure in the form thus made a sharp and perfect impression of the mold.

The machine is also adapted to the admission of air under pressure to the mold while rotating.

In the drawings, Figure 1 is a plan view of the tumbling-machine and its connection with the driving-shaft. Fig. 2 is a section on the line 2 2 of Fig. 1; and Fig. 3 is a side elevation of the parts shown in Fig. 1, some of them being shown in section.

The mold containing the fusible material, such as paraffin, from which the pattern is to be made is represented locked within a box that is given a compound or double rotary motion. The box is represented as divided diagonally into the parts 1 and 2. Part 1 is integral with or attached to the revoluble shaft 3, and part 2 is hinged to part 1, as at 4. An eyebolt 5, supported by a lug 5½ on the part 1 of the box, extends through a lug 6 on the part 2, and a hand-screw 7 upon the end of the bolt above the lug 6 affords means for locking together the parts of the box. An arm 8 revolubly supports the shaft 3 and is in turn fast upon the shaft 9, the relative arrangement and proportions of said parts being such that the shaft 3 is at an angle of approximately forty-five degrees to the shaft 9, and the center of the box for the mold is in line with the axis of the shaft 9. The said box is at the same time caused to rotate with both the shafts 9 and 3 by the following mechanism: The shaft 9 is revolubly supported within the hub 10 of a disk 11, that is attached to a table or other suitable support by the ears 12. Collars 13 and 13^a on the shaft 9 keep it in place, and a friction-cone 14 is adapted to engage with a similar driving-shaft 16. The driving-shaft 16 is represented as revolubly supported

by brackets 17 and the cone 15 as movable longitudinally upon the driven shaft, so that it can be thrown in and out of engagement with the cone 14. To this end the cone 15 is secured to the driving-shaft 16 by means of a key 17½, and a bell-crank lever 18, pivoted on the bearings at 19, is connected with a collar 20 on said cone through the link 21. A key 22 is shown in connection with a fixed segment 23 for locking the lever in its positions in which the cone 15 is in and out of engagement with the cone 14, respectively.

For revolving the shaft 3, that carries the box for the mold and is supported at an angle of approximately forty-five degrees to the shaft 9, a friction-cone 24 is shown that is attached to said shaft 3 and that is adapted to engage the face of the disk 11. A spring 26 on the shaft, between the cone 24 and the arm 8, keeps the cone out against the disk. A nut 25 prevents the cone from falling off the shaft 3 when the machine is being taken apart. Thus when the cone 15 is thrown into engagement with the cone 14 the box is caused to revolve on the axis of the shaft 9 and at the same time on the axis of the shaft 3, so that it is given a compound rotation that causes the fluid material within the mold from which the form is to be made to be thrown outwardly in all directions while cooling against the inner surface of the mold.

The box for the mold is connected with an air or other fluid supply under pressure by a pipe 27, that leads into the shaft 9, which has an air-duct through it, that in turn leads to a space 28 within the arm 8. A duct 29 within the arm 8 leads to a space 30 within said arm 8, and a duct 31 within the shaft 3 leads thence to the interior of the box.

A cock 32 in the supply-pipe controls the admission of air or other fluid. The mold is represented as comprised of similar hemispherical parts and is held in a fixed position within the box by flanges 32½ and 33 on the halves of the mold, respectively, which bear against the fixed part 1 of the box and its lid 2, and also by the flanges 34 and 35, which the bolt 5 engages when it is in place, as shown in Fig. 2.

An aperture 36 leads from the duct 31 to the interior of the mold. If the pattern is to be made with strengthening-pieces 37 and 38 and a brace 39, these are placed within the mold, as represented in Fig. 2, before it is placed within the box. The brace 39, if used, is made with a duct 40, that opens into

the interior of the mold by a perforation 41.

I do not intend to limit myself to the specific construction shown and described; but, on the contrary, I intend to claim the invention set forth as broadly as is possible in view of the prior art.

What I claim is—

1. The combination with a driven shaft, of a second shaft having a fluid-duct therein; an arm attached to said driven shaft, adapted to revolutely support the shaft last mentioned at an angle to said driven shaft; means for rotating said second-mentioned shaft upon its own axis while revoluble with said driven shaft; a mold attached to said secondly-mentioned shaft having a fluid-duct connecting its interior with the fluid-duct of said secondly-mentioned shaft; and connections between the duct in said secondly-mentioned shaft and a fluid-supply under pressure.

2. The combination with a driven shaft having a fluid-duct therein, of a second shaft having a fluid-duct therein; an arm attached to said driven shaft, adapted to revolutely support the shaft last mentioned at an angle to said driven shaft, and having a fluid-duct that connects the ducts in said shafts; means for rotating said second-mentioned shaft upon its own axis while revoluble with said driven shaft; a mold attached to said secondly-mentioned shaft having a fluid-duct connecting its interior with the fluid-duct of said secondly-mentioned shaft; and connections between the duct in said driven shaft and a fluid-supply under pressure.

FRED A. VOELKE.

Witnesses:

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