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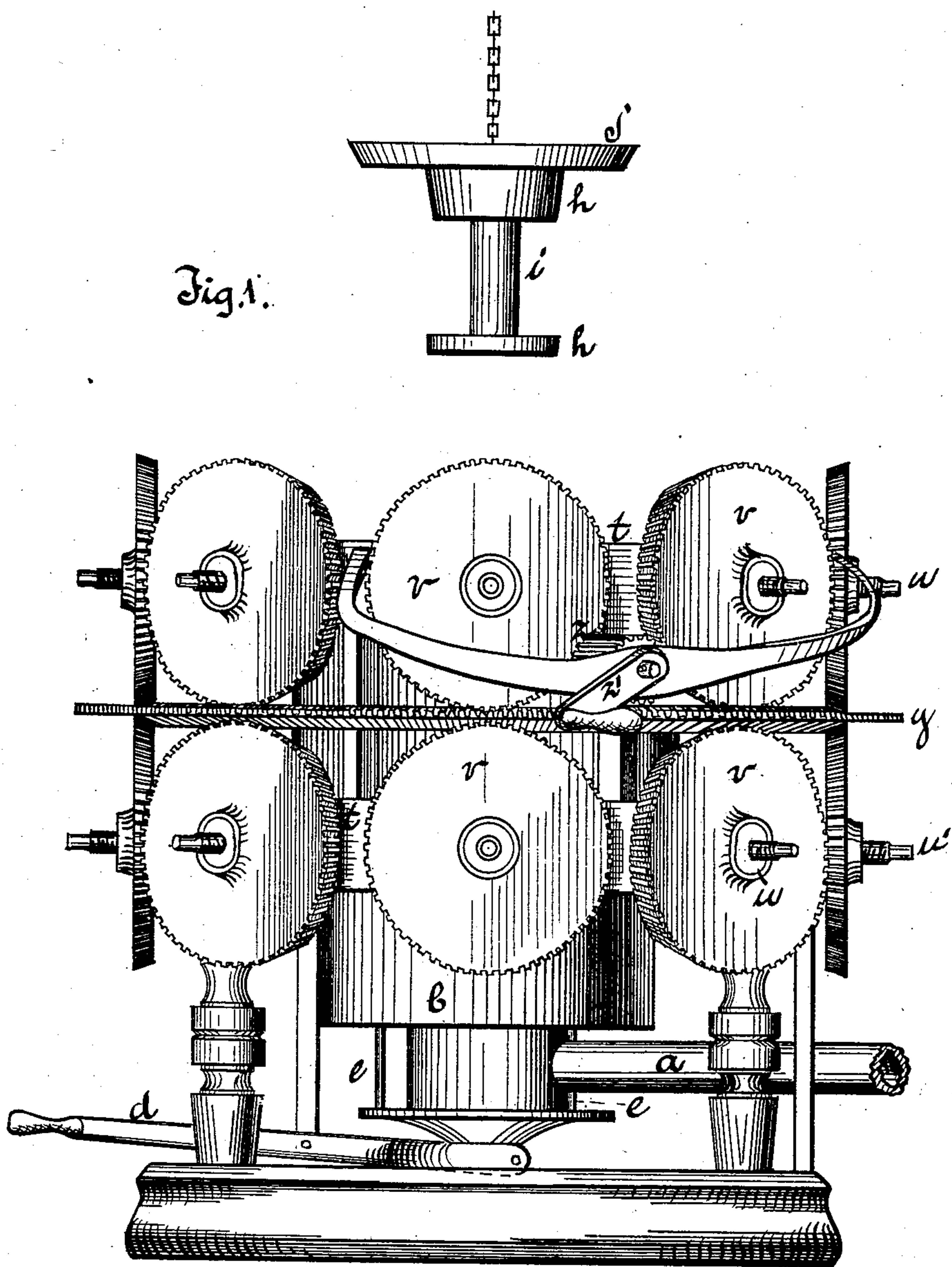
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G. W. LARAWAY.

Machinery for Molding Barrels, &c., from Pulp.  
No. 243,678.

Patented June 28, 1881.

Fig. 1.



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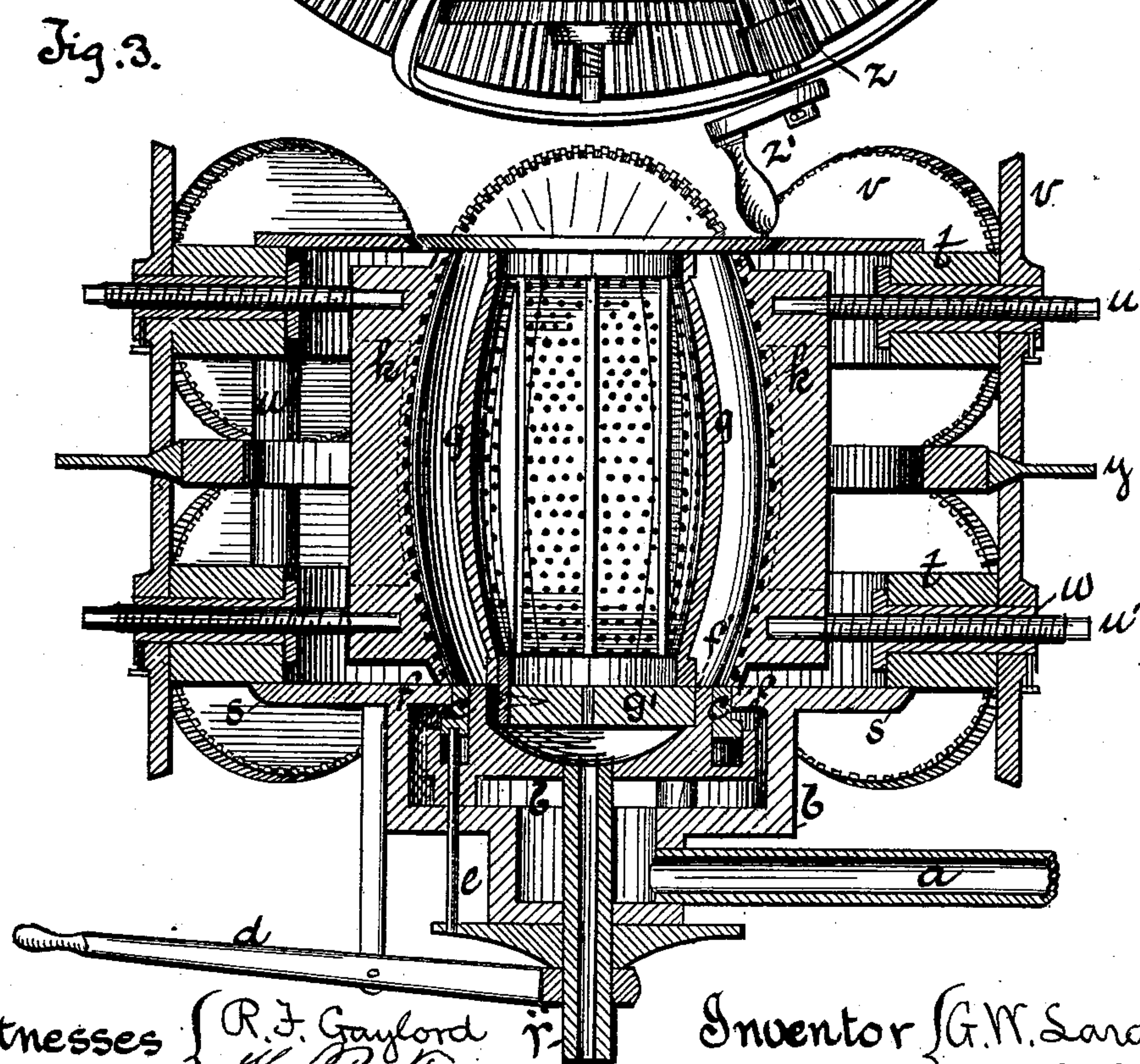
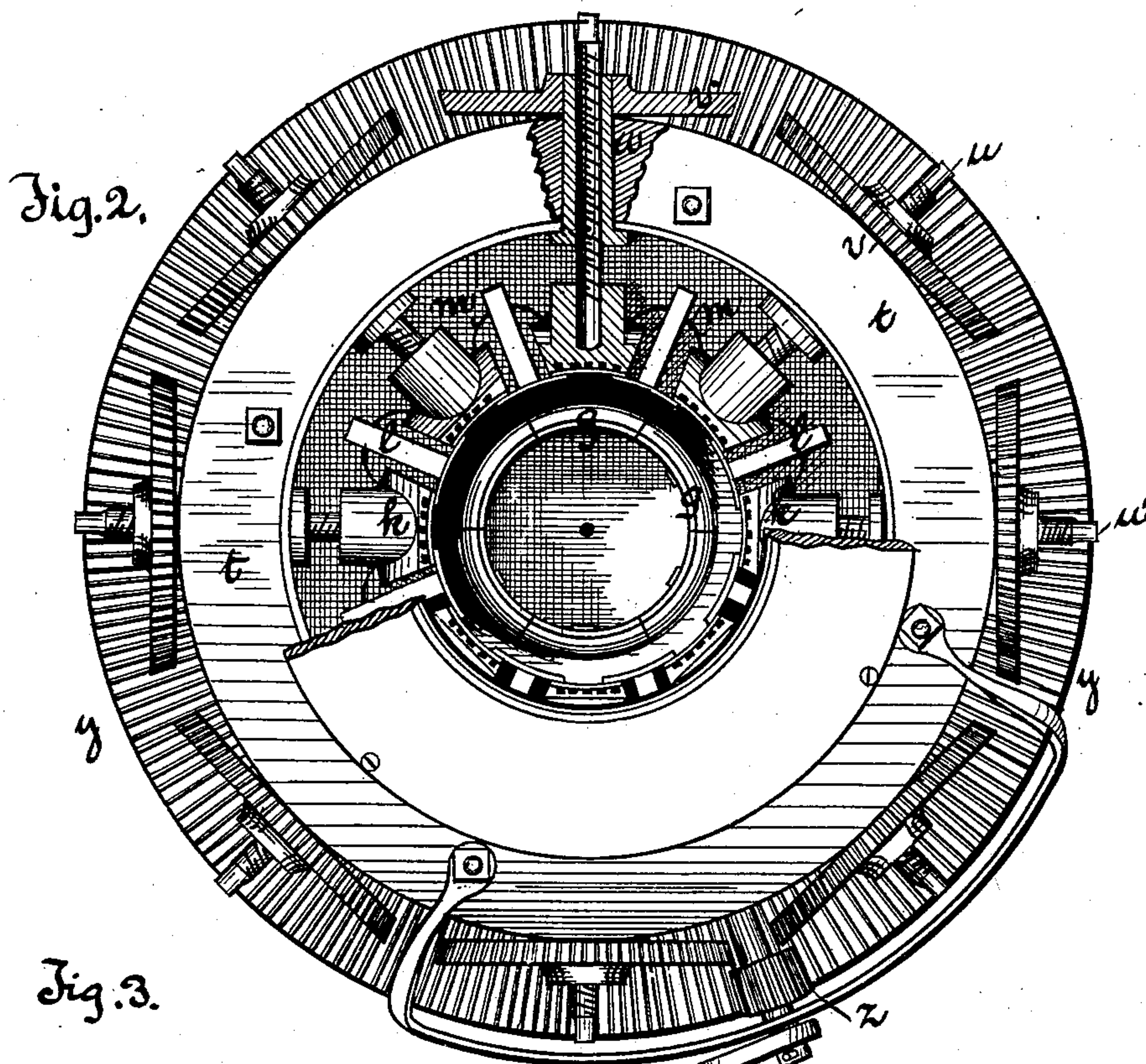


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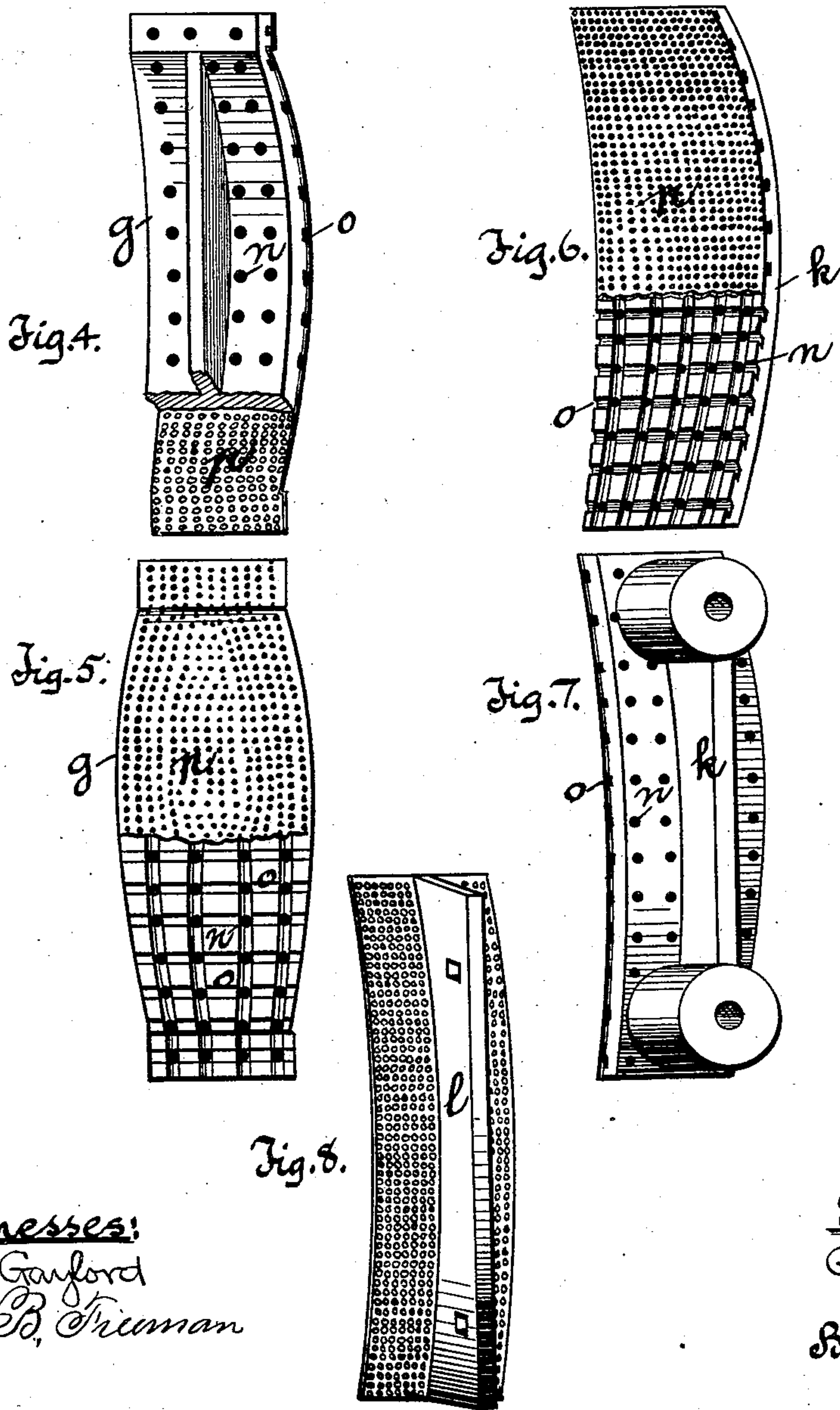
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# UNITED STATES PATENT OFFICE.

GEORGE W. LARAWAY, OF HARTFORD, CONNECTICUT.

## MACHINERY FOR MOLDING BARRELS, &c., FROM PULP.

SPECIFICATION forming part of Letters Patent No. 243,678, dated June 28, 1881.

Application filed March 29, 1880. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE W. LARAWAY, of Hartford, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements pertaining to Machinery for Molding-Barrels and other Hollow Articles from Pulp, of which the following is a description, reference being had to the accompanying drawings, where—

10 Figure 1 is a side view. Fig. 2 is a top view. Fig. 3 is a central section of the parts that compose the mold and that are immediately connected therewith. Fig. 4 is an inside view of the inner stave. Fig. 5 is an exterior view of an inner stave with a portion of the mold-face broken away. Fig. 6 is an inside view of an outer stave with a portion of the mold-face removed. Fig. 7 is an exterior view of the outer stave. Fig. 8 is a view of an interstave.

20 This invention relates to the production of barrels and other hollow articles direct from pulp; and it consists in mechanism for effecting such result.

The machine shown in the drawings is intended for forming the body of a barrel.

25 The free pulp may well be contained in an overhead tank and descend by gravity through feed-pipe *a* (there being a suitable gate in the same) into the chamber *b*, and by opening the annular gate *c*, which is done by lowering it 30 through medium of lever *d* and rods *e*, the pulp finds access to the matrix of the mold. This matrix is bounded on the bottom by the round plate *f*, perforated for the downward escape of 35 water. This matrix is bounded on the inner side by the annular sections *g*, which, from their shape and position, may well be called the "inner staves." They are hinged together, with a single exception, so as to form a core 40 which can collapse to allow the removal of the molded barrel. One of these staves is attached to the foot-plate *g'*, fitting to a corresponding socket, *f'*, in the plate *f*. These staves are kept in a properly-extended position, when a barrel 45 is to be molded by the disks *h*, hung on a rod, *i*, which rod and disks may be lifted out of the machine at will. This matrix is bounded on the top by flange *j*, hung on rod *i*. The matrix is bounded on the outer side by the separate 50 plates *k*, which, from their shape and position, may well be called the "outer staves." They

are radially movable inwardly when a barrel is being molded, and outwardly to release the molded article. There are spaces between these outer staves. These spaces are provided for by 55 interstaves *l*, held to place by springs *m* bearing on the outer sides of the outer staves. These interstaves do not interfere with the radial movement of the outer staves, but close the interspaces at all times. 60

The bodies of both the inner staves and the outer staves are perforated through and through for the escape of water expressed from the pulp. These perforations are denoted by the letter *n*. The outer face of the inner staves 65 and the inner face of the outer staves are grooved for the escape of water. These grooves are denoted by the letters *o*. The outer face of the inner staves and the inner face of the outer staves are covered with a finely-perforated mold-face, denoted by the letter *p*, which 70 will not allow pulp to escape, but will allow the passage of water and its escape through the grooves *o* and perforations *n*. The interstaves are or may be finely perforated. 75

In making a barrel-body the inner staves are put in place properly extended, and thus supported by the disks *h*. By the same action the flange *j*, for forming the top, goes in place. 80 The outer staves being drawn back, the pulp is let in through the annular gate and the gate closed. The outer staves are now advanced radially, compressing the pulp, expressing the water, and forming the barrel. The disks *h* are now withdrawn, the inner staves are curled 85 into a small roll, the gate in feed-pipe *a* closed, the annular gate opened, and the outer staves retracted, when the barrel is readily lifted out. All inside water passes through the perforated foot-plate *g'*, and escapes by pipe *r*. All out- 90 side water flows off on the surface of plate *s*, which forms the top of chamber *b* and a floor for the radial movement of the outer staves.

I will now describe mechanism for giving the radial movement to the outer staves. 95

The letters *t t* denote two rings of an outer frame-work, connected by posts *u*. From the back or outside of each outer stave there project two threaded shafts, *u' u'*, one near the upper end of the stave and one near the lower 100 end. These threaded shafts mesh into the interiorly-threaded sleeves *w*, which rotate in the



rings *t* and bear fast thereupon the gears *v*, which mesh into the gearing *y*, to which movement is given through the medium of pinion *z* and crank *z'*. By turning this crank the gear-ring is rotated, which in turn rotates the gears *v* and sleeves *w*, so that the outer staves and the interstaves dependent on them may be advanced or retracted at pleasure.

I claim as my invention—

10 1. A mold for the fabrication from pulp of barrels and other similar articles, said mold being composed of an outer and inner set of staves or sections in the space between which the barrel or other article is formed under  
15 pressure exerted upon the pulp by one of the set of staves or sections, substantially as hereinbefore set forth.

20 2. A mold for the fabrication from pulp of barrels and other similar articles, said mold being composed of an outer and inner set of staves or sections in the space between which the barrel or other article is formed, under pressure from without exerted inwardly upon the outer staves or sections, substantially as  
25 hereinbefore set forth, and for the purposes described.

3. A mold for the fabrication from pulp of barrels and other similar articles, said mold being composed of an outer and inner set of perforated staves or sections, in the space between which the barrel or other article is formed, under pressure from without exerted inwardly upon the outer staves or sections, substantially as hereinbefore set forth, and for the purposes described. 30

35 4. A mold for the fabrication from pulp of barrels and similar articles, said mold being composed of an outer and inner set of staves or sections having their working faces grooved and covered with a finely-perforated mold-face, substantially as hereinbefore set forth, and for the purposes described. 40

45 5. In a mold for the fabrication from pulp of barrels and other similar articles, a collapsing core of bilged form for shaping the interior of the package, substantially as shown and described.

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Witnesses:

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WM. E. SIMONDS.