

(No Model.)

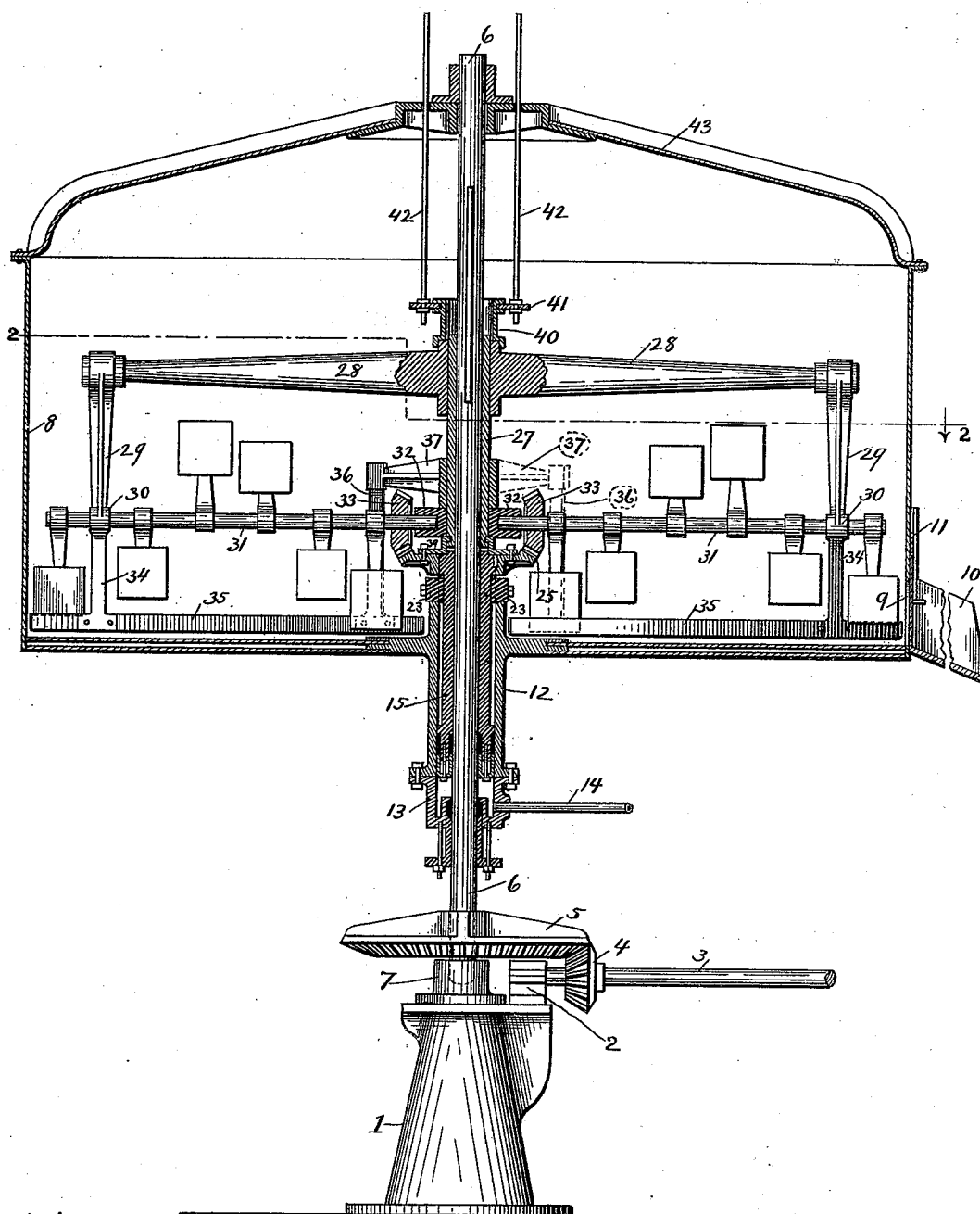
2 Sheets—Sheet 1

R. GARICH.  
MASH MACHINE.

No. 512,693.

Patented Jan. 16, 1894.

FIG. 1.



Witnesses:  
J. Halpenny  
Adolphus Rosmus.

Inventor:  
Robert Garich  
By his attorneys,  
Gibbs & Hopkins

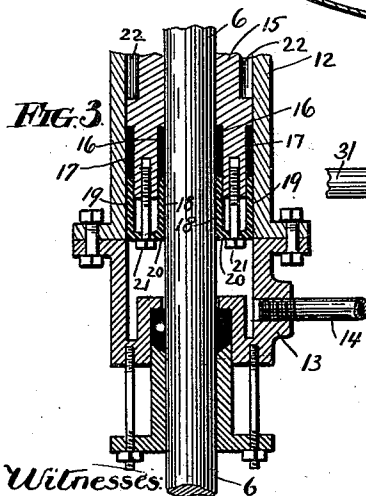
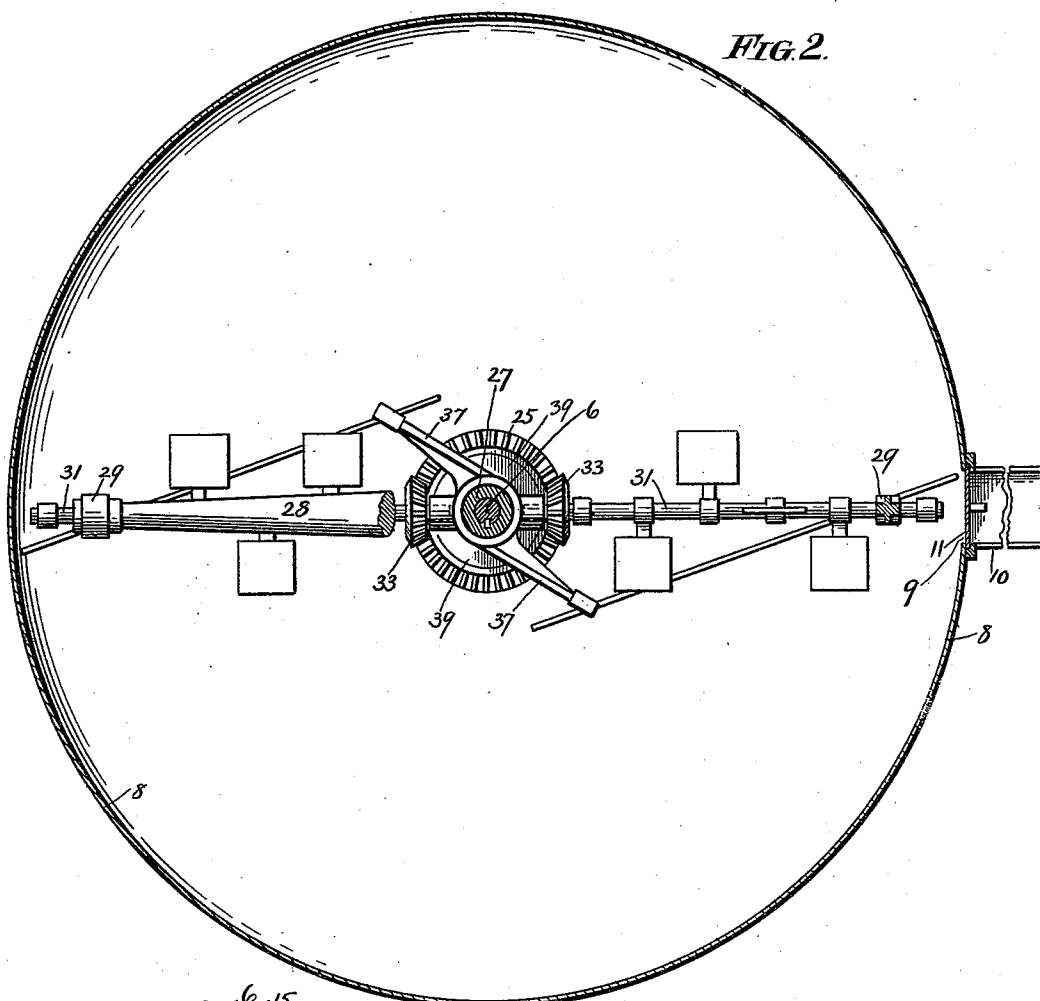
(No Model.)

2 Sheets—Sheet 2.

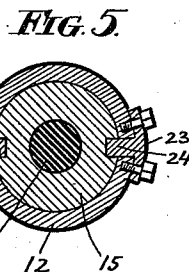
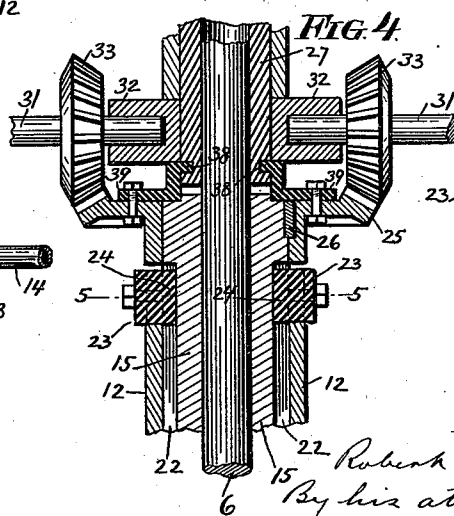
R. GARICH.  
MASH MACHINE.

No. 512,693.

Patented Jan. 16, 1894.



Witnesses:  
*J. Halpermy*  
*Adolph Rymus.*



**Inventor:**  
*Robert Garich*  
By his attorneys:  
*Grady & Hopkins*

# UNITED STATES PATENT OFFICE.

ROBERT GARICH, OF CHICAGO, ILLINOIS.

## MASH-MACHINE.

SPECIFICATION forming part of Letters Patent No. 512,693, dated January 16, 1894.

Application filed December 23, 1892. Serial No. 456,110. (No model.)

### *To all whom it may concern:*

Be it known that I, ROBERT GARICH, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Mash-Machines, of which the following is a specification, reference being had to the accompanying drawings, which are made a part hereof, and in which—

Figure 1, is a vertical axial section of a mash machine embodying my invention. Fig. 2, is a plan view of such a machine. Figs. 3 and 4, are vertical sections of portions thereof on a larger scale. Fig. 5, is a horizontal section on the line 5—5, Fig. 4.

The present invention consists in the features of novelty that are particularly pointed out in the claims hereinafter.

1, represents a pedestal, supporting a journal-box 2, in which is journaled one end of the driving shaft 3 carrying a gear-wheel 4, which meshes with a second and larger gear wheel 5, secured to the main shaft 6 of the machine. The lower end of this shaft 6 is stepped into a bearing 7 supported by the pedestal 1, whence it extends vertically through the mash tub 8. This tub is sustained by the floor of the building, or other suitable support, and has in its side a discharge opening 9, opposite which is arranged an inclined chute 10 for carrying off the discharged refuse, a door 11 being provided for controlling the discharge.

Secured to the bottom of the tub and projecting both upward and downward from it is a cylinder formed in two parts 12 and 13, with the lower one of which communicates a pipe 14, through which fluid, under pressure, is admitted to and permitted to escape from the cylinder for the purpose of operating a piston 15. This piston is cylindrical and through it passes the shaft 6. At its lower end its interior surface is provided with an annular groove in which fits a ring 16 for packing the joint between the piston and shaft, and its exterior surface is provided with a groove for a similar ring 17 for packing the joint between the cylinder and piston, these packing rings being crowded up to their work by a follower of the shape shown in the drawings. It consists of a single part comprising two concentric rings or short cylinders, 18 and 19, the former of which is of such thickness and

diameter that it is adapted to enter the inner groove and bear upon the ring 16, while the latter is of such thickness and diameter that it is adapted to enter the outer groove and bear upon the ring 17, said rings 18 and 19 being connected by a web 20. Bolts 21 passing through this web and tapped into the end of the cylinder provide means for forcing the follower up to its work. In the sides of the piston are formed two longitudinal grooves 22 and to the top of the cylinder are secured, preferably by bolts, two T-shaped blocks 23, the stems 24 of which pass through slots in the sides of the cylinder and enter the grooves of the piston whereby it is held against rotating, while its endwise movement within certain limits is not in any way interfered with.

To the upper end of the piston a gear wheel 25 is rigidly secured by any suitable means, as for example by a key 26, and since the piston cannot rotate, neither can this gear wheel.

Surrounding the shaft 6, above the gear wheel 25, is a sleeve 27, which fits the shaft loosely, so as to be capable of an endwise movement relatively thereto, its relative rotary movement being prevented by a spline and groove. To this sleeve is secured heavy cross-arms 28, carrying at their extremities hangers 29, which support the bearings 30 for the outer ends of the stirrer shafts 31, the bearings 32 for the inner ends of said shafts being supported by the sleeve 27. Upon these shafts are gear wheels 33, which mesh with the gear wheel 25, and in this way the stirrer shafts are given a rotary motion.

The hangers 29 have portions 34 projecting downward below the bearings 30 and the lower extremities of these are secured to sweep plates, or scrapers, 35, the inner ends of said plates being secured to the lower ends of hangers 36, which depend from short arms 37 secured to and carried by the sleeve 27. These scrapers are set at a tangent and extend in tangential directions to within a very short distance of the wall of the tub. Their effect upon the mash is to force it outward, and when the opening 9 is not obstructed they will force it outward and through said opening, into the chute 10. Near its lower end the sleeve 27 is provided with a circumferential groove in which fit tongues 38 formed

upon half round plates 39 that are bolted or otherwise secured to the gear wheel 25. By this means the sleeve 27 and the piston 15 are connected in such a manner that they are capable of relative rotary movement, but are incapable of relative longitudinal movement. The object of this is to insure that the sleeve 27 and its attached parts shall fall gradually and with the piston. Actual practice has demonstrated that where the sleeve and piston are not connected, the friction between two sleeve and the rotating shaft 6 is great enough to hold the sleeve in an elevated position, while the piston falls. The result is that as soon as the friction between the sleeve and shaft is lessened in some way (as by the stopping of the machine) the sleeve falls with a bang, and to the injury of the machine. It is to avoid this that, according to my present invention, I connect the sleeve (or other part to which the working parts are attached) and the piston by means of a coupling which will permit of their relative rotary motion but prevent their relative longitudinal motion.

40 is a ring or short cylinder surrounding the shaft 6 and movable with the sleeve 27, or a part carried by it. In the outer face of this ring is a circumferential groove in which fits loosely a ring 41 and from this ring rises one or more rods 42 that project through openings in the cover 43 of the tub. This ring partakes of all of the longitudinal movements of the sleeve 27, but is held by the rods against rotary movement, and the rods partake of the movements of the ring, so that their projecting ends indicate the height of the parts within the tub.

Having thus described my invention, what I claim as new therein, and desire to secure by Letters Patent, is—

1. In a mash machine, the combination with a tub, the stirring mechanism and a revoluble part by which it is carried, of a vertically movable plunger, a coupling connecting the plunger and revoluble part aforesaid, whereby they are held against longitudinal movement, and means for raising and lowering the plunger, whereby the stirring mechanism is raised and lowered, substantially as set forth.

2. In a mash machine, the combination with a tub, a stirring mechanism and the revoluble part by which it is carried, of a vertically movable plunger, means holding it against rota-

tion, a coupling connecting the plunger and the revoluble part aforesaid, whereby they are held against independent, longitudinal movement, and means for raising and lowering the plunger whereby the stirring mechanism is raised and lowered, substantially as set forth.

3. In a mash machine, the combination with a tub, of the stirring mechanism, the revoluble sleeve 27 by which it is carried, said sleeve having a circumferential groove, a vertically movable plunger, means for raising and lowering said plunger, tongues occupying the groove of the sleeve, and means connecting said tongues to the plunger, substantially as set forth.

4. In a mash machine, the combination with a tub, the stirring mechanism and a revoluble part by which it is carried, of the vertically movable piston 15 located beneath said revoluble part, a coupling connecting the piston and revoluble part, a cylinder in which said piston fits, and means for raising and lowering the piston and thereby raising and lowering the stirring mechanism, said piston being held against rotation, substantially as set forth.

5. In a mash machine, the combination with a tub, the stirring mechanism and means for rotating it, of a vertically movable piston having a longitudinal groove, a cylinder in which said piston fits, said cylinder having an opening in the side, and a T-shaped block secured to the cylinder so that its stem projects through the opening in the side of the cylinder and into the groove, in the piston, holding it against rotation, substantially as set forth.

6. In a mash machine the combination with the tub, the stirring mechanism, the piston, and a suitable packing device carried by the piston, of the cylinder in which the piston fits, said cylinder being formed in two parts 12 and 13 removably attached to each other, so that when the lower of said parts is removed the end of the piston may be exposed to give access to the packing device, substantially as set forth.

ROBERT GARICH.

Witnesses:

ADOLPH ASZMUS,  
L. M. HOPKINS.