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PATENTED AUG. 22, 1905.

M. HULVORSEN & L. A. WALLS.

MIXING DEVICE.

APPLICATION FILED JULY 26, 1904.

Fig. 1.

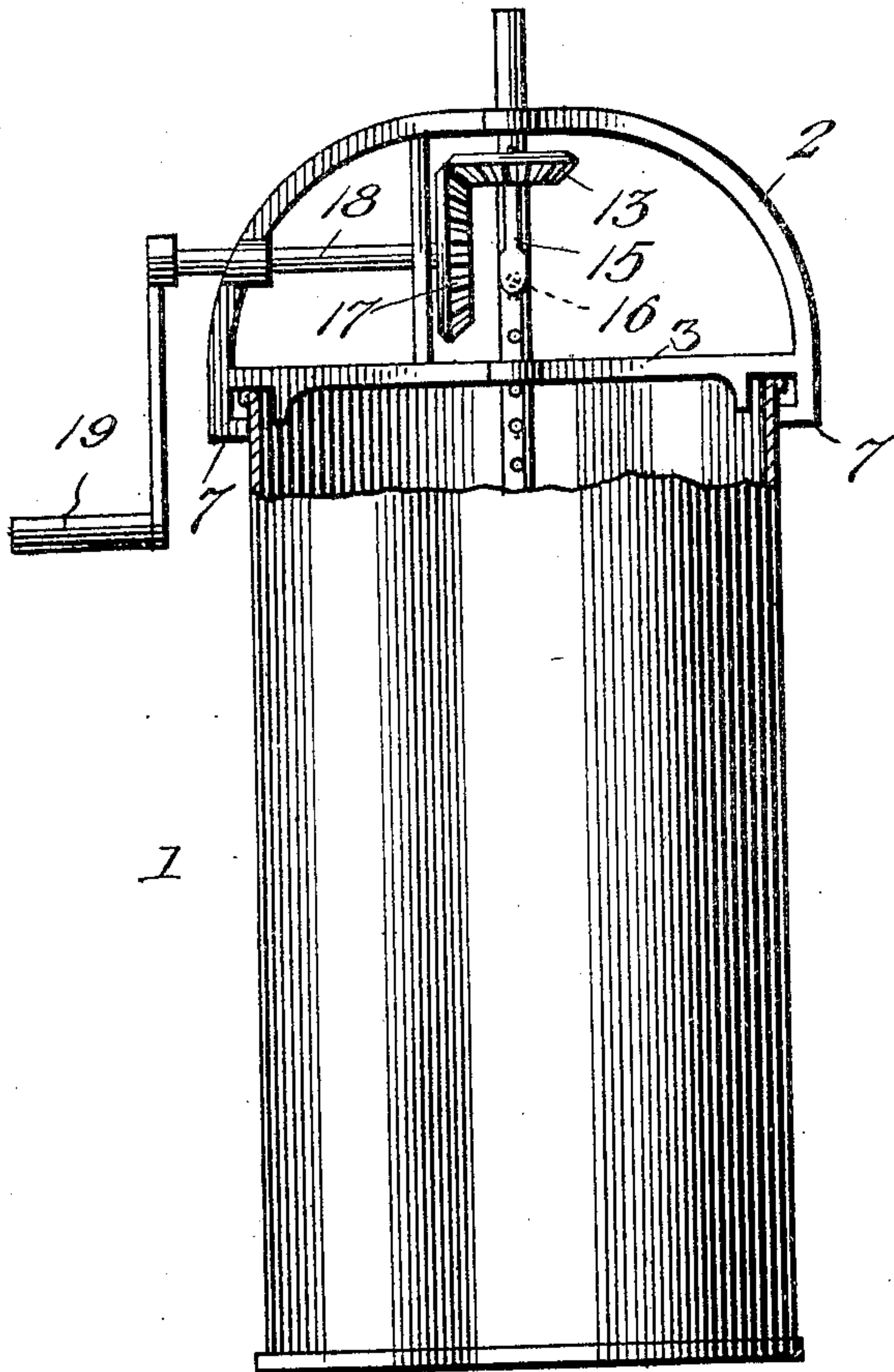


Fig. 2.

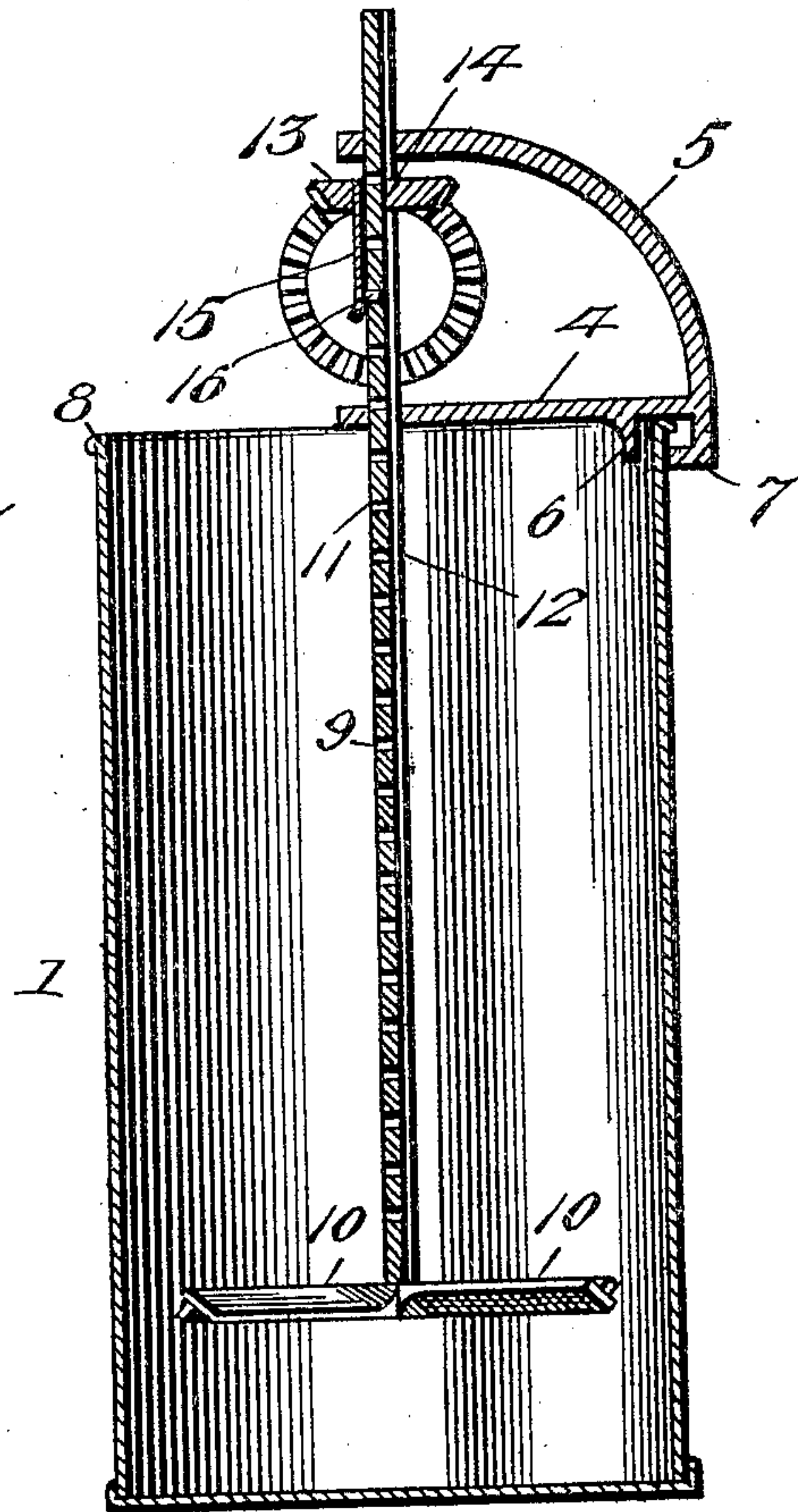
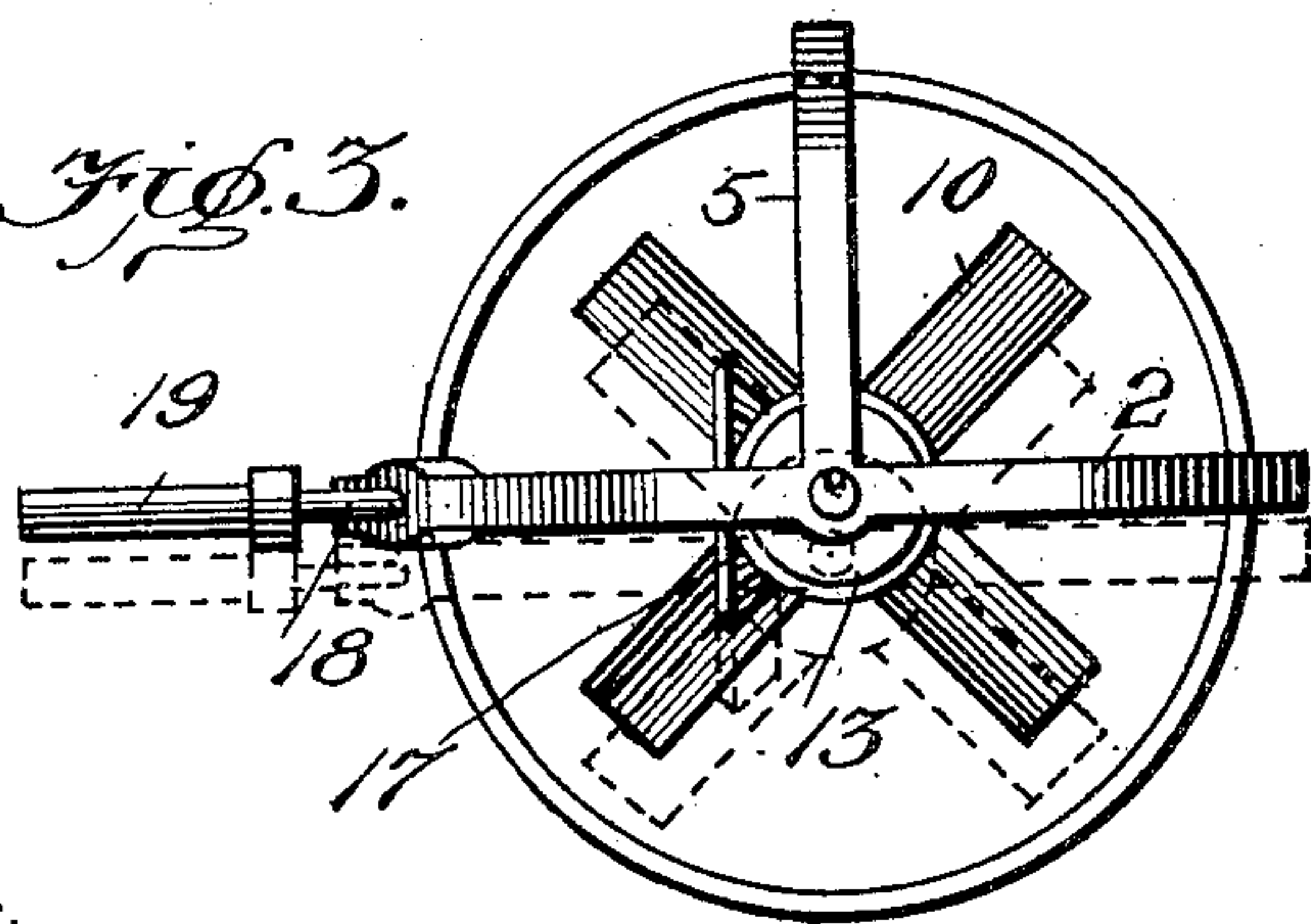


Fig. 3.



WITNESSES:

Geolckman Jr.  
W. H. Clarke.

INVENTORS  
Laurence A. Walls,  
Martin Hulvorsen.

BY  
Victor J. Evans Attorney



# UNITED STATES PATENT OFFICE.

MARTIN HULVORSEN AND LAURENCE A. WALLS, OF VASHON,  
WASHINGTON.

## MIXING DEVICE.

No. 797,959.

Specification of Letters Patent.

Patented Aug. 22, 1905.

Application filed July 26, 1904. Serial No. 218,291.

*To all whom it may concern:*

Be it known that we, MARTIN HULVORSEN and LAURENCE A. WALLS, citizens of the United States, residing at Vashon, in the county of King and State of Washington, have invented new and useful Improvements in Mixing Devices, of which the following is a specification.

This invention relates to mixing devices such as are used in beating eggs, churning milk, or making dough.

The objects of the invention are to improve and simplify the construction of such devices.

With these objects in view the invention resides in novel means for adjusting the mixing-shaft vertically upon its supporting-frame and in novel and simplified means for attaching the supporting-frame to the rim of the vessel upon which the improved mixing device is used.

The invention also resides in the particular combination and arrangement of parts and in the details of construction hereinafter described and claimed as a practical embodiment of the invention.

In the accompanying drawings, Figure 1 is a side elevation, partly in section, of a device constructed in accordance with the invention applied to the vessel in connection with which it is used. Fig. 2 is a vertical section at right angles to Fig. 1. Fig. 3 is a plan view of the device applied to the vessel.

Like reference-numerals are employed to indicate corresponding parts in the several views.

The reference-numeral 1 indicates a circular vessel, which may be of any desired form and construction. The supporting-frame of the improved mixer comprises a curved brace 2, connected at its ends with a cross-piece 3, having an angularly-extending member 4. A short curved brace 5 connects the end of the angularly-disposed member 4 and the upper portion of the brace 2. The cross-piece 3 and the angularly-disposed member 4, which, in effect, constitute radially-extending supporting members, are each provided with downwardly-extending parallel flanges 6 and 7, the flanges 6 being adapted to engage the inner periphery of the vessel 1 and the flanges 7 the outer periphery thereof. For this purpose each flange 7 is preferably angular in cross-section in order to engage the enlarged rim 8 of the vessel 1.

The manner of engaging the improved sup-

porting-frame with the vessel 1 is as follows: The frame is fitted down upon the vessel off to one side of a line drawn through the center thereof, as indicated by the dotted lines in Fig. 3. For this reason the flanges at opposite ends of the cross-piece 3 loosely engage the rim 8 of the vessel 1 and the flanges of the member 4 are out of engagement with said rim. By moving the frame toward the center of the vessel, so that it will occupy the position shown by full lines in Fig. 3, the flanges of the cross-piece 3 will tightly engage the rim of the vessel. By lifting the member 4 so that its flanges 6 and 7 will clear the rim of the vessel, said flanges may be lowered until they engage opposite sides of said rim in the same manner as the flanges of the cross-piece 3. The construction described permits the supporting-frame to be engaged readily with the vessel 1 without the employment of turn-screws or other similar clamping devices, as ordinarily employed.

Extending vertically through the supporting-frame of the device is a rotary shaft 9, which is provided at its lower ends with stirrer arms or blades 10. The shaft 9 is formed on one side with a series of sockets, notches, or depressions 11 and on the opposite side with a longitudinal groove 12, by means of which a gear-wheel 13 is splined thereon, said gear-wheel being formed with a key 14, fitted into said groove 12 for this purpose.

Fitted into or otherwise suitably connected with the gear-wheel 13 is a resilient tongue 15, having thereon a projection or pin 16, which is adapted to engage any one of the sockets 11 in the rotary shaft 9. The gear-wheel 13, the cogs of which are beveled, as shown, is operated by means of a bevel gear-wheel 17, mounted on the end of a horizontal shaft 18, operated by means of a crank 19. The bevel-gear 17 serves to hold the gear-wheel 13 in elevated position and to prevent said gear-wheel from descending in the supporting-frame through the weight of the rotary shaft 9.

When it is desired to adjust the mixing-shaft 9 in a vertical direction, as is necessary in mixing various materials, the projection of the resilient tongue 15 is withdrawn from the socket 11 with which it is engaged and the shaft is moved upward or downward to the desired extent, after which the projection of the resilient tongue is permitted to engage a

different socket 11 to hold the rotary shaft securely in adjusted position.

It will be observed that the end of the resilient tongue 15 is bent away from the shaft 9 in order to provide a finger-piece which may be engaged readily by the finger in withdrawing the projection of the tongue from the socket in which it is seated.

The device of this invention is extremely simple, inexpensive, and durable in construction as well as thoroughly efficient in operation. In its particular combination and arrangement of parts and in its details of construction it presents an improvement over prior devices of a similar character.

Having thus described the invention, what is claimed as new is—

A mixing device having a supporting-frame, a mixing-shaft formed with a series of sockets, a gear-wheel splined on the shaft, a resilient tongue on the gear-wheel having a projection adapted to engage any one of the notches in the shaft said tongue being formed with a finger portion, a second gear-wheel meshing with and supporting the first-mentioned gear-wheel, and a crank-shaft for operating the last-mentioned gear-wheel.

In testimony whereof we affix our signatures in presence of two witnesses.

MARTIN HULVORSEN.  
LAURENCE A. WALLS.

Witnesses:

W. D. HURLBUT,  
H. B. BATEMAN.