

No. 842,262.

PATENTED JAN. 29, 1907.

R. Z. SNELL.  
MIXING MACHINE.  
APPLICATION FILED OCT. 24, 1905.

Fig. 1.

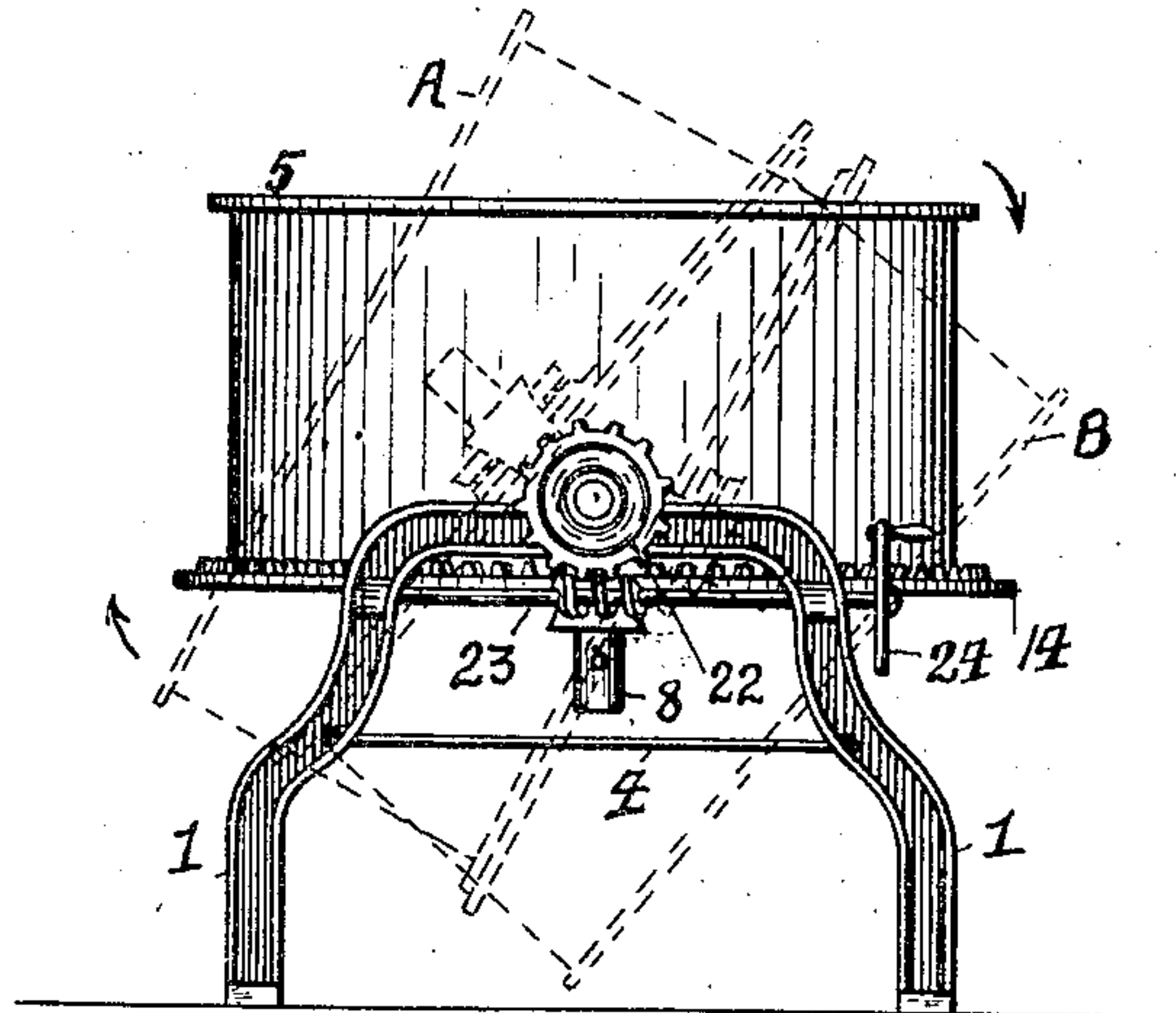
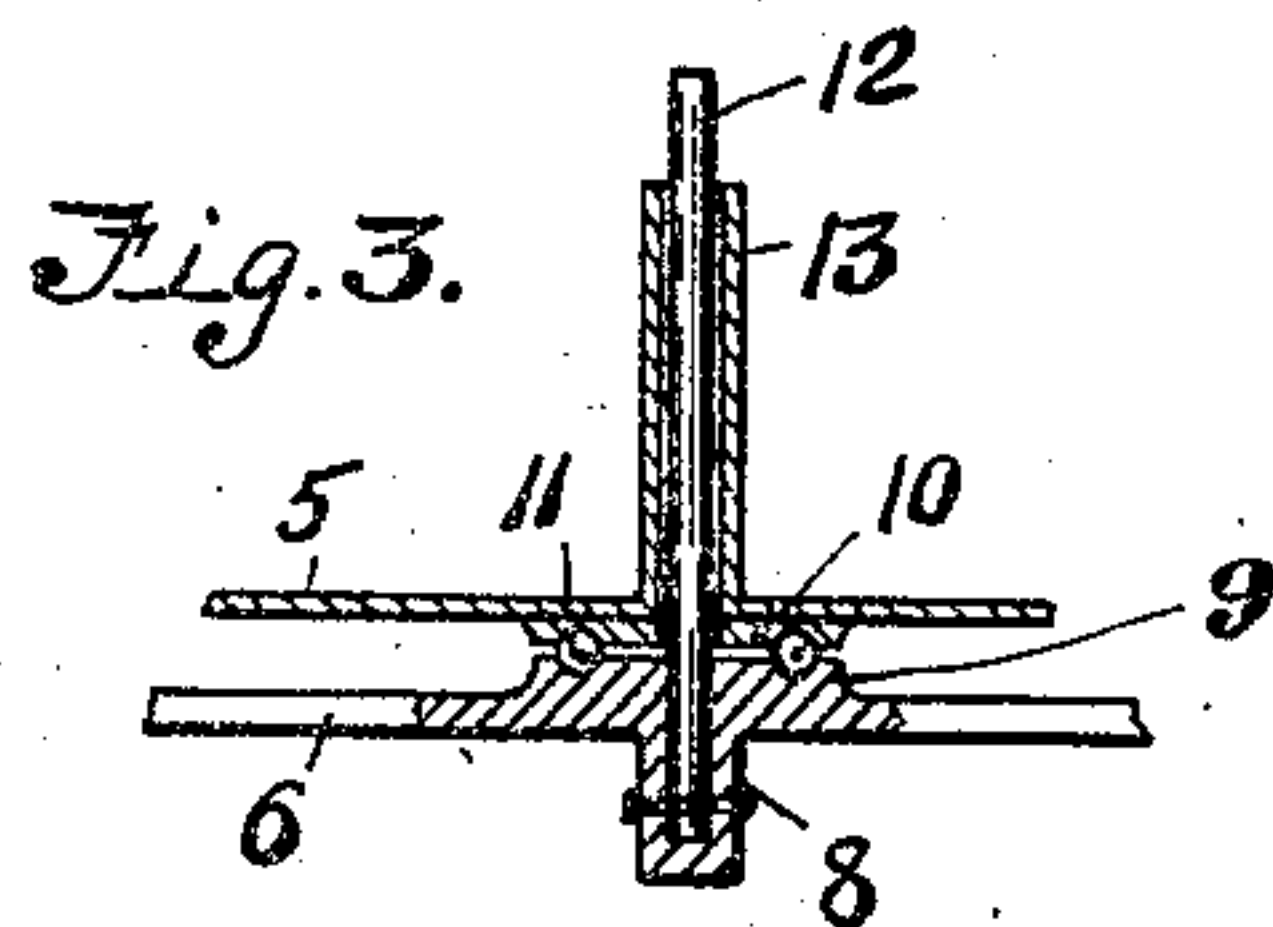
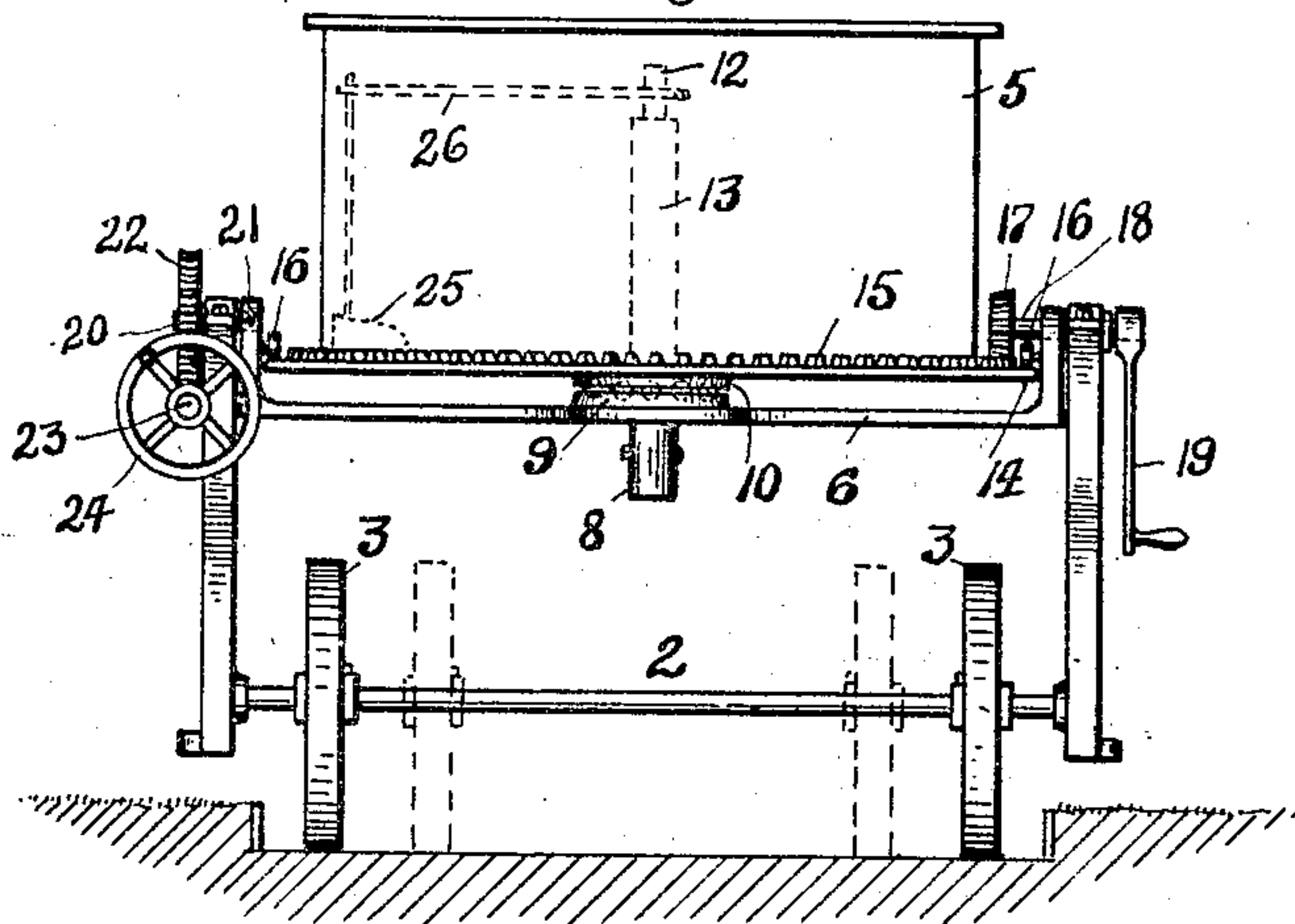


Fig. 2.



Witnesses.  
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# UNITED STATES PATENT OFFICE.

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## MIXING-MACHINE.

No. 842,262.

Specification of Letters Patent.

Patented Jan. 29, 1907.

Application filed October 24, 1905. Serial No. 284,151.

*To all whom it may concern:*

Be it known that I, RANSOM Z. SNELL, a citizen of the United States, residing at South Bend, in the county of St. Joseph and State of Indiana, have invented new and useful Improvements in Mixing-Machines, of which the following is a specification.

This invention relates to improvements in mixing-machines; and it is more particularly designed for mixing concrete and similar substances.

The object of the present invention is to provide a machine of this character in which the mixing-tank is rotated on its vertical and horizontal axis simultaneously to amalgamate the material and to dispense the contents; and the invention consists in the construction, combination, and arrangement of parts, all as will be more fully described hereinafter, illustrated in the accompanying drawings, and finally pointed out in the appended claims.

In the drawings, Figure 1 is a side elevation showing in dotted lines two different positions of the mixing-tank. Fig. 2 is an elevation at right angles to Fig. 1, and Fig. 3 is a detail in section of the center bearing of the mixing-tank.

In carrying out my invention I employ any suitable frame on which to support the mixer. This frame is shown in Figs. 1 and 2 as comprising the standards 1, in the feet of which are journaled shafts or axles 2, on which may be mounted wheels 3, which are keyed to the shaft and rotate therewith and which may be adjusted longitudinally thereon, so as to adjust the tread for different-width troughs or trenches which are formed in the building of cement walks, as shown in Fig. 2. These wheels may also be utilized to transport the mixer from place to place. The frame 1 is braced by rods 4.

The mixing-tank 5 is supported upon a cross-bar 6, which is pivoted at each end to the standards 1. At its center this cross-bar is formed with a depending socket 8 and a raised face 9, with which a central downwardly-projecting plate 10 on the bottom of the mixing-tank coöperates to form a bearing for the mixing-tank, there being suitable balls 11 mounted in alining ball-races in the contiguous faces, as shown in Fig. 3. This provides a good substantial bearing for the tank; but to prevent swerving in its rotation a suitable axle-bearing has been associated with the ball-bearings above described.

This axle-bearing consists of a shaft 12, the lower end of which is fitted and keyed into the socket 8 of the supporting cross-bar 6. This shaft extends through the bearing-plates 9 and 10 and into an integral upwardly-projecting sleeve 13 of the tank, so as to provide an axle-bearing for the tank, preventing the latter from swerving or tilting on its ball-bearings.

The bottom of the tank projects beyond the sides thereof to provide a marginal flange 14, on which is a circumferential rack 15 and with which a pair of rollers 16 engage, the rollers being mounted on suitable spindles fixed in the upright ends of the supporting cross-bar 6 and bearing upon the upper face of the flange, so as to insure against the tank being tilted or displaced from its central bearing especially when it is rotated on its horizontal axis, as will be explained hereinafter. The rack 15 is engaged by a gear-wheel 17, mounted on a shaft 18, which has its bearing in the upper end of the standard 1 at one side of the machine, where it is provided with a crank-handle 19 or with any other means for imparting rotation to the shaft 18 and its gear-wheel 17 and thence by the latter's engagement with the rack to the mixing-tank. One end of the supporting cross-bar 6 is hung upon the shaft 18 of the tank-rotating means and the other end of said cross-bar is rigidly secured to the inner end of a spindle 20, which is journaled in the upper end of the standards 1 at the opposite side of the machine, and thus the supporting cross-bar 6 is suspended at one end by a loose connection with the shaft 18 and at its other end by a rigid connection with the spindle 20, as at 21 in Fig. 2. On the outer end of the spindle 20 is rigidly secured a worm-wheel 22, with which a worm-shaft 23, mounted in bearings in the standards and having on one end a hand-wheel 24, engages. Thus when the worm-shaft 23 is rotated the worm-gear is in turn rotated with the spindle 20 to tilt or rotate the tank 5, with its supporting cross-bar 6, whereby the shaft 18 and the spindle 20 act as trunnions for the mixing-tank. A suitable scraper 25 is arranged so as to scrape the corners, being supported from an arm 26, fixed upon the end of the axle-shaft 12, as shown in dotted lines in Fig. 2.

In using this machine the mixing and discharging of the concrete is accomplished by the combined rotary motion of the mixing-tank—that is to say, the mixing-tank has a



rotation on its vertical axis or bearing 11 simultaneously with a swinging movement on its horizontal trunnions 18 and 20, and these movements may be continuous, in which instance a closure of any suitable type may be provided for the tank. In Fig. 1 the tank is shown at A in dotted lines in a tilted position, which may be the position at which the contents are introduced, and as the tank approaches the position shown in full lines in Fig. 2 (the course being indicated by the arrows) the ingredients are partially mixed, but become thoroughly amalgamated as the tank is again tilted, and when it finally reaches the position indicated by B in dotted lines in Fig. 1 the contents are discharged in a thoroughly-mixed condition.

Special stress is laid upon the manner of arranging the bearings for the mixing-tank, and it will be noted that the tank not only has an antifriction-bearing 11 when standing in a perfectly upright horizontal position, as indicated in full lines in the figure of the drawings, but is also prevented from sliding on said bearing when tilted from the true horizontal position by means of the stationary axle-bearing 12, and when the tank is inverted the roller-bearings 16 engage the flange 14 and serve to hold the parts intact, rollers 16 also acting to steady the rotation of the tank on its bearing 11 either when tilted or otherwise.

It will be seen that the machine, though simple in construction and light in weight as compared with other similar machines, is efficient in carrying out all the purposes for which it is intended.

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

1. A concrete-mixer embodying standards, a supporting cross-bar connected at each end with the top of the standards, a mixing-tank

rotatably mounted on the cross-bar and having a rack therearound, a shaft journaled in the upper end of one standard, constituting a trunnion for one end of the supporting cross-bar, and having a gear thereon adapted to engage with the rack on the tank, means for rotating said shaft, a spindle journaled in the upper end of the other standard and having one end secured to the other end of the cross-bar to constitute the other trunnion for the latter, and means connected with said spindle for rotating the latter to tilt the tank, whereby the tank may be rotated on both its vertical and horizontal axis.

2. The combination with a pair of standards, of a cross-bar pivotally supported by the standards, a mixing-tank rotatably mounted on the cross-bar and having a projecting marginal flange provided with a rack upon its upper face, a shaft journaled in one of the standards, and pivotally supporting one side of the cross-bar, and a gear-wheel on the shaft, meshing with the rack on the mixing-tank.

3. A concrete-mixer embodying standards, a supporting cross-bar pivotally hung from the upper ends of said standards, an axle-shaft secured to said cross-bar and projecting upwardly, a mixing-tank having a bearing on said cross-bar and also provided with a sleeve which has a bearing on said axle-shaft, a scraper supported from said axle-shaft, means for rotating the mixing-tank on the axle-shaft, and means for rotating the tank on the pivots of the supporting cross-bar, substantially as specified.

In testimony whereof I affix my signature in presence of two subscribing witnesses.

RANSOM Z. SNELL.

Witnesses:

GEORGE OLTSCH,  
G. M. COLE.