S. B. TWINING.

MIXING MACHINE.

APPLICATION FILED APR. 19, 1911.

1,045,916.

Patented Dec. 3, 1912.

Fig. 1.

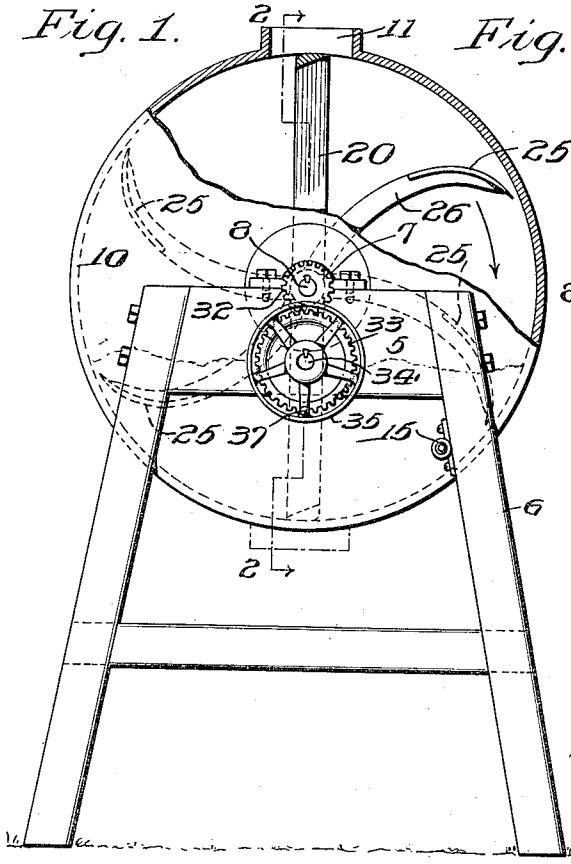


Fig. 2.

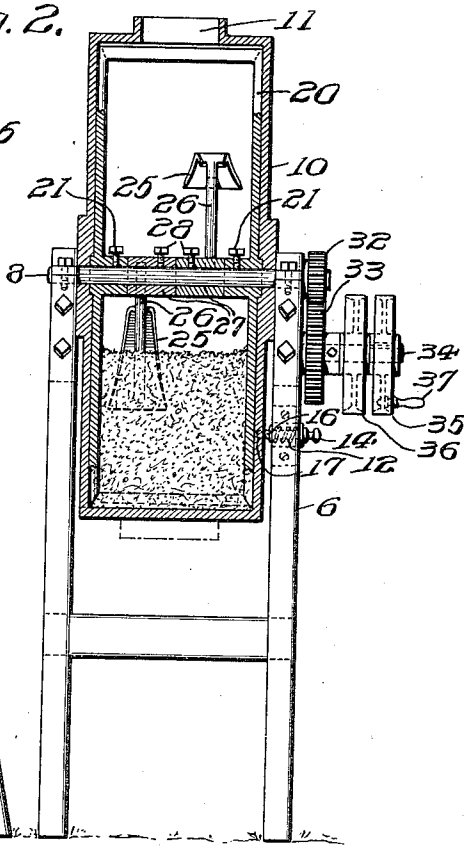
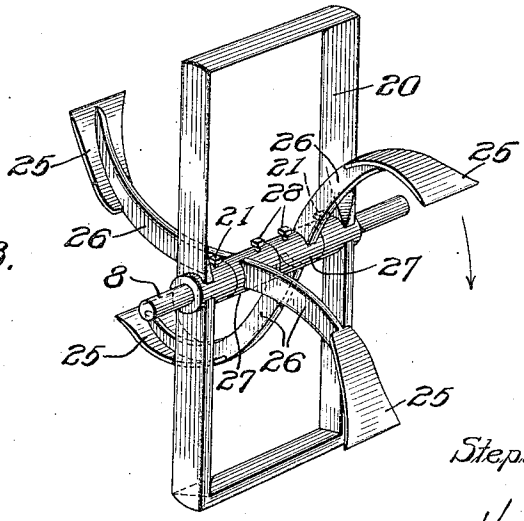


Fig. 3.



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MIXING-MACHINE.

1,045,916. Specification of Letters Patent. Patented Dec. 3, 1912.

Application filed April 19, 1911. Serial No. 621,984.

To all whom it may concern:

Be it known that I, STEPHEN B. TWINING, a citizen of the United States, and a resident of Yardley, in the county of Bucks and State of Pennsylvania, have invented certain new and useful Improvements in Mixing-Machines, whereof the following is a specification, reference being had to the accompanying drawing.

This invention particularly relates to mixing machines of the class wherein rotary blades are arranged to agitate the material to be mixed within a suitable receptacle.

The principal objects of this invention are, to provide a mixing machine that is simple in design, effective in operation, and that may be cheaply manufactured.

Other objects of this invention are, to provide a mixing machine with means arranged to agitate the material to be mixed, and means movable with said agitating means to continuously scrape the entire inner surface of the receptacle containing said material during the mixing operation, to remove any particles of said mixture which may tend to adhere thereto.

Further objects of this invention are, to provide a mixing machine with agitating paddles which are rotatably adjustable with respect to the scraping means, and which are curved inwardly to raise the component particles of the bulk of the mixture from the bottom and distribute them on the top thereof; and to provide driving means for actuating the mixing members.

The form of this invention hereinafter described provides a receptacle with rotatably mounted agitating paddles, and a rectangular scraping member adjusted with respect to said paddles and engaging the walls of said receptacle, and having means whereby it may be rotated.

This invention further includes all of the various novel features of construction and arrangement hereinafter more definitely specified.

In the accompanying drawing, Figure 1 is a side elevational view of a mixing machine constructed in accordance with this invention, and having the receptacle thereof broken away for the convenient illustration of the agitating members disposed therein; Fig. 2 is a transverse vertical sectional view taken on the line 2—2 in Fig. 1 and showing the end view of the supporting frame in elevation, for convenience of illustration; and Fig. 3 is a perspective view of the shaft of said machine with the agitating and scraping members mounted thereon.

In said figures the frame 5, which includes the standards 6, is provided with the bearings 7 for the rotatable shaft 8, upon which the normally stationary receptacle 10 is mounted. Said receptacle 10 is provided with a suitable aperture 11, through which the material to be mixed may be inserted when in the position shown in the drawing, and through which the mixed material may be discharged when said receptacle 10 is inverted to the position shown in dot and dash lines in Figs. 1 and 2, by rotating it upon said shaft 8.

The receptacle 10 is normally maintained in its operative position shown in the drawing, by a spring detent 14, which is mounted for reciprocation in the detent casing 15, carried by the standard 6 at the right-hand side of Fig. 1, and said detent 14 is embraced by the spring 12 which normally tends to engage the end of its bolt 16 into the aperture 17 in the wall of said receptacle 10, said bolt being readily withdrawn by the operator when it is desired to invert the receptacle 10 to discharge its contents.

A suitable scraping member 20 is adjustably secured on the shaft 8 by set-screws 21 and comprises a rectangular blade whose sharpened edges project in the direction of movement of the scraper, in contact with the inner walls of said receptacle, the sharpened edges of the scraper being disposed in opposite directions upon the opposite sides of the axis of rotation.

It may be here noted that by the peculiar construction of the scraper, the entire inner surface of the receptacle 10 is continuously freed from any adhering deposits of the material being mixed, and at the same time said material is thrown inwardly by the tapered surfaces of the scraping blades into the path of the agitating paddles 25. Said scraper 20 also automatically effects the rotation of the receptacle 10 when the bolt 16 of the detent is withdrawn.

As best shown in Figs. 1 and 3, the agitating paddles 25 are preferably formed integral with their supporting arms 26, which extend in ogee form from their hubs 27, which latter are secured on the shaft 8 by

set-screws 28 and rotatably adjustable thereon with respect to each other and with respect to the scraping member 20.

As best shown in Fig. 1 of the drawing, the paddles 25 are slightly curved inwardly from its free edge, so that when rotated its front edge is projected into the material 30 to be mixed, adjacent to the cylindrical wall of the receptacle 10, and by its further movement draws the component parts of said material from said wall toward the central axis of the machine, and distributes them over the top surface thereof, whereby said component parts are thoroughly intermixed throughout the bulk of said material, which effects a thorough commingling of the constituents of the mixture.

As shown in the drawing, the paddles 25 and scraping member 20 are preferably disposed with their respective forward edges equally spaced around the peripheral wall of the receptacle 10, but may be otherwise disposed, and adjusted in any relative positions desired.

The rotation of the driving shaft 8, which carries the agitating members, is effected through a gear 32 carried by said shaft, and arranged to mesh with a gear 33 on the driving shaft 34, which carries the usual tight and loose pulleys 35 and 36 respectively, the former of which is provided with the operating handle 37, whereby the machine may be actuated manually in the absence of a suitable power generator.

By the use of the scraper the walls of the receptacle 10 are freed from any adhering deposits of the glutinous material which usually collects upon the walls of mixing machines of the class described, and which offers considerable resistance to the free movement of the agitating members and the material to be mixed. Furthermore, said scraping action prevents the adhering of a particular element of the compound being mixed, which would otherwise prevent the ultimate mixture containing the proper proportions of all of the elements which form said mixture.

It is not desired to limit this invention to the precise details of construction and arrangement herein set forth, as it is obvious that various modifications may be made therein without departing from the essential features of the invention as defined in the appended claim.

Having thus described my invention, I claim:

In a mixing machine the combination with a receptacle for the material to be mixed, of paddles rotatably mounted in said receptacle and arranged to agitate said material, a scraping member adjustable with respect to said paddles and comprising a rectangular frame disposed in an axial plane of said receptacle and having sharpened edges engaging each of the inner walls of said receptacle, and means arranged to rotate said scraping member.

In witness whereof, I have hereunto set my hand this 13th day of April, A. D., 1911.

STEPHEN B. TWINING.

Witnesses:

FREDERICK A. BLOUNT,

ALEXANDER PARK.