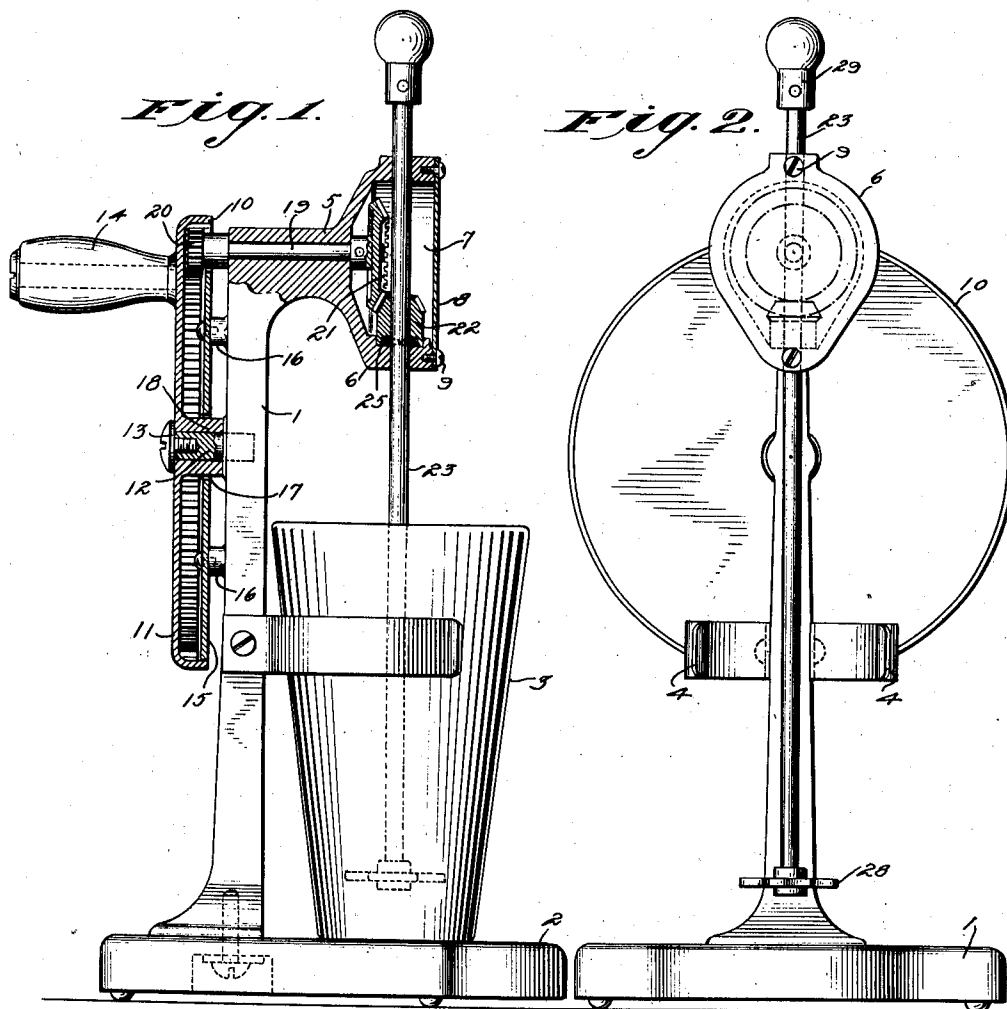
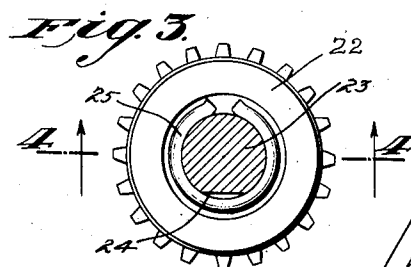
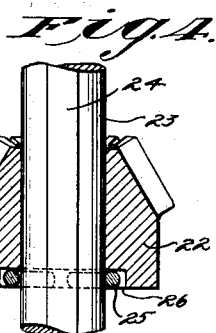
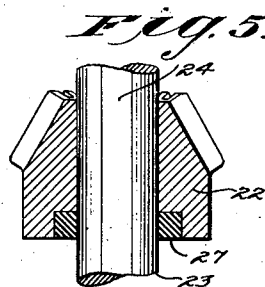


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MIXING DEVICE WITH INDEPENDENTLY ADJUSTABLE STIRRING ROD.  
APPLICATION FILED OCT. 29, 1919.

1,333,379.

Patented Mar. 9, 1920.



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# UNITED STATES PATENT OFFICE.

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MIXING DEVICE WITH INDEPENDENTLY-ADJUSTABLE STIRRING-ROD.

1,333,379.

Specification of Letters Patent.

Patented Mar. 9, 1920.

Application filed October 29, 1919. Serial No. 334,162.

*To all whom it may concern:*

Be it known that I, MATHEW BLACK, a citizen of the United States, and resident of the city of New York, borough of Brooklyn, county of Kings, and State of New York, have invented a new and Improved Mixing Device with Independently-Adjustable Stirring-Rod, of which the following is a full, clear, and exact description.

This invention relates generally to a stirring and mixing device, and more particularly to a mixer adapted to be manually operated.

In the mixing and stirring devices heretofore provided, either hand or motor operated, if it is desired to lift or raise the mixing or stirring member, it has been necessary to move the driving mechanism therewith.

One of the objects of this invention is to provide in a stirring device, either for manual or motor operation, a construction which will permit the stirring member to be raised or moved independently without moving the driving mechanism therewith, and to provide a means in combination therewith for holding the stirring rod in properly adjusted position.

A further object of this invention is to provide a stirring or mixing device of simple and compact construction, inexpensive to manufacture, and so arranged that the stirring rod may be held in variable vertical adjusted positions without requiring the movement of the driving mechanism therewith.

Still another object of this invention is to provide in a manually operated stirring device, a construction which will enable the stirring rod to be driven at a relatively high speed, with relatively few parts, so arranged as to form a sanitary construction in which the driving mechanism is protected.

A further object of this invention is to provide in a stirring device having a stirring rod slidable axially of a driving member, a means to yieldingly engage the said rod to hold the same in vertically adjusted position, and to function as a wiper therefor.

With the above and other objects in view, the invention consists in the construction, arrangement and combination of parts here-

inafter more fully described, and particularly set forth in the appended claims.

With reference to the accompanying drawings forming a part of this specification, illustrating one of the practical embodiments of the invention, in which similar characters of reference designate corresponding parts in the several views,

Figure 1 is an elevation view partly broken away and showing certain parts thereof in section.

Fig. 2 is a side elevation view of Fig. 1.

Fig. 3 is an enlarged view showing a stirring rod in section, and a resilient means for wiping the rod and holding the same in adjusted position.

Fig. 4 is a broken view showing the stirring rod in elevation, and other parts in section looking in the direction of the arrows and taken on the line 4—4 of Fig. 3.

Fig. 5 is a view showing a form for wiping the rod and holding the same in vertically adjusted position.

In the drawings showing for example a practical embodiment of the invention, a suitable standard 1 is shown mounted on a suitable base 2, on which a receptacle 3 containing the material to be mixed or stirred is placed, suitable arms 4 preferably connected to the standard 1 being provided for suitably positioning the receptacle 3. It is to be understood however that the form and certain of the details of construction form no part of this invention, as the same may be changed and altered to suit individual preference, and different conditions of use. In the form shown, a laterally extending arm 5 is formed at the upper part of the standard 1, and is provided with an enlarged head portion 6 having a recess 7 extending inwardly thereof, in which mechanism hereinafter to be described is arranged. A suitable cover 8 is provided to cover the open end of the recess, and is secured to the head 6 by screws 9 or other suitable means.

In stirring devices heretofore provided, the stirring or mixing member has been driven by a suitable mechanism, all of which have been mounted in a suitable manner on an arm, the construction being such that it has been necessary to raise the driving mechanism with the stirring member in order to raise the rod from the receptacle, a suitable

construction being provided for holding the mechanism in a raised position. Further, in the driving mechanism, spur gears have been provided, which has necessitated the use of  
5 additional guards and covers therefor.

In order to eliminate the necessity for the use of a special outer covering or guard for the driving gears, an internal gear 10 preferably having one side 11 closed and integral  
10 with said gear, is rotatably mounted upon a shaft 12 extending from the standard 1. The gear may be held in proper position on the shaft 12 in any suitable manner, but in order to facilitate the removal thereof, a screw 13  
15 is threaded in the end of the shaft 12, the head of such screw serving to hold the gear in proper position. A suitable handle 14 may be connected in any suitable manner to the side 11, so that the gear 10 may be manually actuated. In order to form a closure  
20 for the other side of the gear 10, a disk 15 is connected to the bosses 16 in a suitable manner, the said disk being provided of course with a suitable opening 17 to receive the hub  
25 18 of the gear. It is thus seen that by providing the internal gear 10, no gear teeth are exposed externally. This is one feature which enables less parts to be used and contributes to the production a sanitary construction which does not accumulate dust  
30 and dirt. A shaft 19 is rotatably mounted in the transverse arm 5 at the upper part of the standard, and a pinion 20 is mounted at one end within the gear 10, and engages the teeth thereof. The other end of the shaft  
35 19 extends inward of the recess 7, and a beveled gear 21 is mounted thereon, the said beveled gear in turn engaging a beveled pinion 22 rotatably mounted in a suitable manner in the head 6 of the standard. It is  
40 thus seen that by turning the handle 14, the gear 10 will be rotated, which in turn will drive the pinion 20 at a greatly increased speed, which pinion will in turn drive the  
45 beveled pinion 22 at an increased speed through the beveled gear 21, the said beveled pinion turning on an axis substantially normal to that of the pinion 20. It is to be understood that the arrangement of the  
50 gears and ratios thereof may be varied to give any speed desired of the beveled pinion actuating member 22.

To provide a construction which will permit a stirring member or rod to be independently movable and adjusted to varying  
55 heights, without moving the actuating member or driving mechanism therewith, the actuating member 22 is provided with an aperture to receive a stirring member or rod  
60 23 so that the said stirring rod may slide therethrough and thus be adjusted to different heights without the necessity of having to move the driving mechanism therewith, as has heretofore been the common practice.  
65 The rod and aperture are suitably formed,

so that the said rod may be rotated by the pinion or rod actuating member 22, and for this purpose in the form shown, the rod is provided with a flattened surface 24 which  
70 engages a corresponding flat surface of the aperture. In order to provide a means for holding the rod in its adjusted position, and to further function as a wiper for the rod, a wiping holding member 25 is arranged preferably within a recess 26 of the pinion 22,  
75 to yieldingly engage the stirring rod 23, so that as the said rod 23 slides through the pinion, the member 25 will wipe the rod, and hold the said rod in any desired adjusted position.  
80

As shown in Figs. 3 and 4, the wiping and positioning member 25 is shown as a spring yieldingly embracing rod 23. A modified form is shown in Fig. 5, in which a rubber ring 27 is shown within the recess  
85 26, of the pinion 22 and yieldingly engaging the stirring rod 23.

The positioning or wiping member 25 yieldingly engaging the rod 23 may be arranged in any suitable position, but preferably the said member is arranged to turn with the actuating pinion 22 the advantage of such a construction being that the said positioning and wiping member rotates with the rod, and functions as a wiper or cleaner  
90 when the rod 23 slides upward or downward. Further, by being so arranged the said positioning member does not exert a retarding effect upon the rotation of the rod as would be the case if the said member were mounted  
100 in the stationary head 6. Any suitable mixer or stirrer 28 may be arranged upon the stirring rod 23, and a suitable stop 29 which may also serve as a knob to be grasped, in moving the rod, is suitably melted at the top  
105 of the rod. The head 6 of the standard 1 is provided with apertures through which the stirring rod 23 may pass.

In constructing the various parts of the apparatus, any suitable materials well known  
110 in the art may be used. With special reference to the internal gear, the teeth thereof together with the side and hub, are preferably formed as an aluminum die casting. Aluminum is preferably used for other parts.  
115 but it is to be understood that this invention is not to be limited in use to the materials used in the construction.

While certain practical embodiments and details of construction have been shown  
120 herein, it is to be understood that various changes and modifications may be made without departing from the spirit and scope of this invention.

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

1. A mixing device comprising a standard, a pinion rotatably mounted in said standard, means mounted on the standard  
130

for driving said pinion at a relatively high speed, a stirring rod slidable in said pinion, and a resilient element rotatable with the pinion and yieldingly engaging the stirring rod, said element functioning as a positioning member to hold the rod in any vertical adjusted position.

2. A mixing device comprising a standard, a pinion rotatably mounted in said standard, means mounted on the standard for driving said pinion at a relatively high speed, a stirring rod rotated by and movable axially of said pinion, and a resilient means rotatable with the pinion and arranged to yieldingly engage the rod for holding the same in any vertically adjusted position relative to the pinion.

3. A mixing device comprising a standard, an actuating member rotatably mounted in said standard, means mounted on the standard for driving said actuating member at a relative high speed, a stirring rod slidable axially of said actuating member, a means carried by said actuating member and yieldingly engaging said stirring rod for holding the same in an intermediate adjusted position, axially of said actuating member, and a means arranged to establish a driving relation between said actuating member and said stirring rod.

4. In a device of the character described, the combination of a stirring rod and a member for rotating said rod, the said rod being arranged to move parallel to the axis of rotation relative to said member and a resilient means arranged within said rotating member and yieldingly engaging said stirring rod whereby the said rod may be held in any intermediate adjusted position relative to the rotating member.

5. In a device of the character described, the combination of a stirring rod and a member for rotating said rod, the said rod being arranged to move parallel to the axis of rotation, and a resilient means arranged within said member yieldingly engaging said rod to hold the same in any vertically adjusted axial position relative to said member.

6. In a device of the character described the combination of a gear, a stirring rod slidable through said gear and adapted to be rotated thereby, and a means movable with the gear yieldingly engaging said rod, whereby the rod is held in any vertically adjusted position, the said means functioning as a wiper when the rod is moved axially of the gear.

7. The combination of a standard, an internal gear rotatably mounted on said standard, a handle therefor, a pinion rotatably mounted on said standard and arranged to engage said first named gear, another pinion rotatably mounted on said standard, a driv-

ing connection between said pinions, a stirring member movable axially of said last named pinion, and a resilient member bodily movable with said last named pinion and arranged to yieldingly engage the stirring member to hold the same in any adjusted position.

8. The combination of a standard, an internal gear rotatably mounted on said standard, a handle therefor, a pinion rotatably mounted on said standard and arranged to engage said first named gear, another pinion rotatably mounted on said standard, a driving connection between said pinions, and a stirring rod slidable through said last named pinion and adapted to be rotated thereby, and a friction means bodily rotatable with said pinion yieldingly engaging said rod to hold the same in vertically adjusted position.

9. In a device of the character described, the combination of a vertical standard, an internal gear closed on one side and rotatably mounted thereon, a stationary covering mounted on the support for closing the other side, a handle fixed to the integral closed side of the gear, a pinion engaging said first named gear, a shaft for said pinion rotatably mounted in said standard, a beveled pinion mounted on said standard to rotate about an axis normal to the axis of said shaft, a beveled gear mounted on said shaft and engaging the beveled pinion, a stirring rod rotated by said beveled pinion and slidable therethrough whereby the said stirring rod may be adjusted vertically without movement of the driving mechanism, and a spring bodily rotatable with the pinion and yieldingly engaging the rod.

10. In a device of the character described, the combination of a vertical standard, an internal gear closed on one side and rotatably mounted thereon, a stationary covering mounted on the support for closing the other side, a handle fixed to the integral closed side of the gear, a pinion engaging said first named gear, a shaft for said pinion rotatably mounted in said standard, a beveled pinion mounted on said standard to rotate about an axis normal to the axis of said shaft, a beveled gear mounted on said shaft and engaging the beveled pinion, and a stirring rod rotated by said beveled pinion and slidable therethrough whereby the said stirring rod may be adjusted vertically without movement of the driving mechanism, and a resilient member bodily movable with said beveled pinion arranged to embrace and yieldingly engage the said rod when it is moved in either direction axially of the pinion, and to hold it in any vertically adjusted position.

MATHEW BLACK.