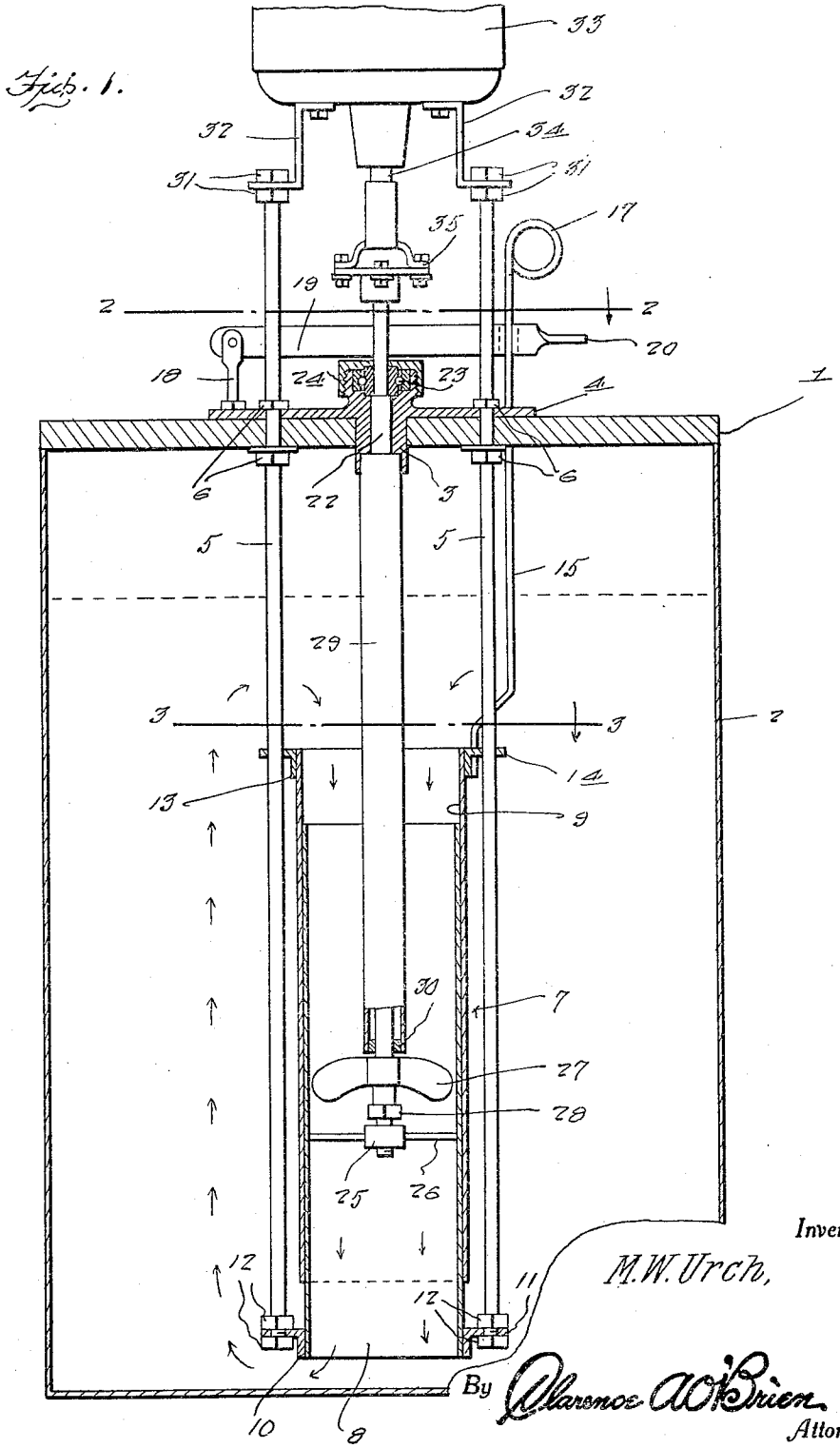
Dec. 13, 1932. M. W. URCH 1,891,122

PORTABLE MIXING MACHINE

Filed Dec. 10, 1931 2 Sheets-Sheet 1

Fig. 1.



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Fig. 2.

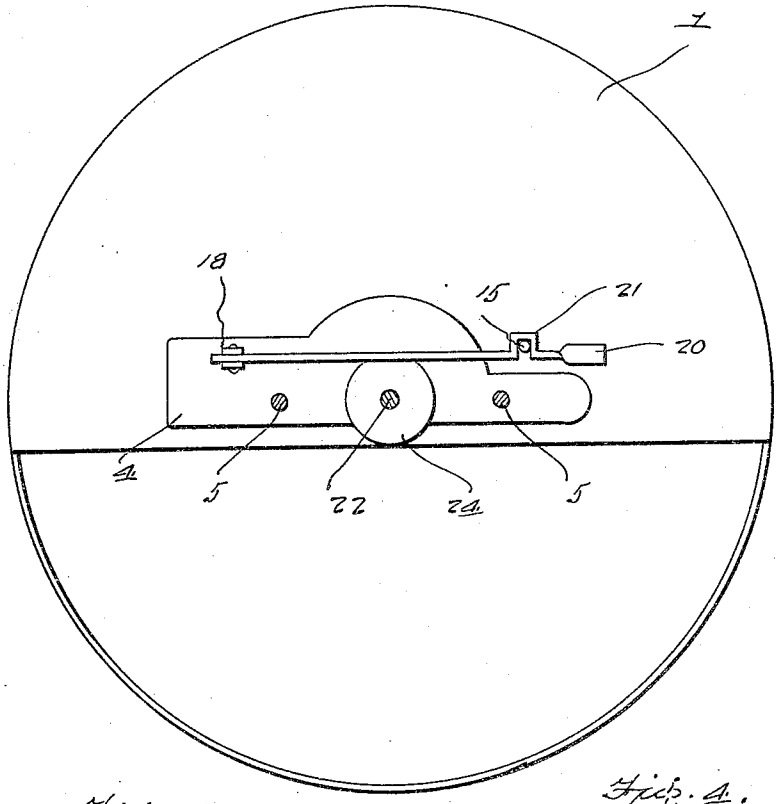


Fig. 3.

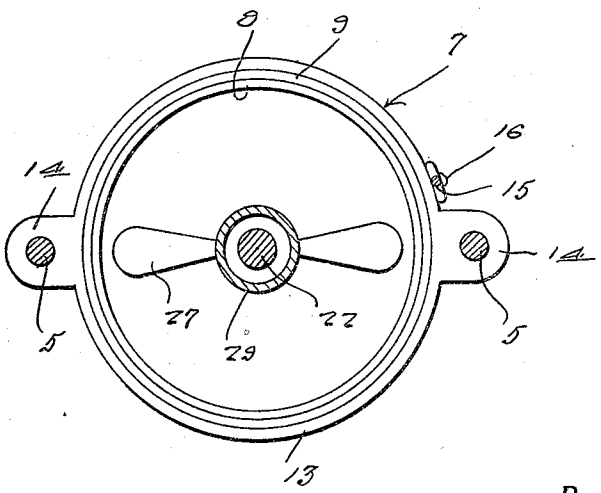
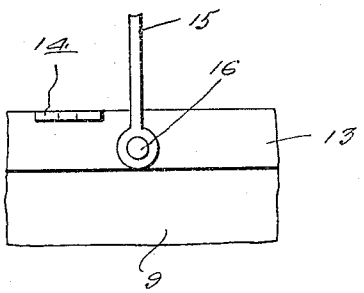


Fig. 4.



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UNITED STATES PATENT OFFICE

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PORTABLE MIXING MACHINE

Application filed December 10, 1931. Serial No. 580,136.

The present invention relates to a portable mixing machine for use in mixing various materials and has for an important object to provide, in a manner as hereinafter set forth, a device of this character embodying a novel construction, combination and arrangement of parts through the medium of which the same may be expeditiously mounted for operation on a conventional barrel, tank, drum or other containers, of any size, portable or stationary.

Another very important object of the invention is to provide a mixing machine of the aforementioned character in which the direction of travel of the materials being mixed may be reversed at will and further including novel adjusting means for regulating the mixing of the materials.

Other objects of the invention are to provide a portable mixing machine of the character described which will be simple in construction, strong, durable, light in weight, compact, efficient and reliable in use and which may be manufactured at low cost.

All of the foregoing and still further objects and advantages of the invention will become apparent from a study of the following specification, taken in connection with the accompanying drawings wherein like characters of reference designate corresponding parts throughout the several views, and wherein:—

Figure 1 is a view in vertical section through a mixing machine constructed in accordance with the present invention showing the same mounted in position for use on a tank or other container.

Figure 2 is a view in horizontal section taken substantially on the line 2—2 of Figure 1, looking downwardly, as indicated by the arrows.

Figure 3 is a view in horizontal section taken substantially on the line 3—3 of Figure 1 looking downwardly, as indicated by the arrows.

Figure 4 is a detail view in elevation showing the connection of the adjusting rod to the vertically slidable cylinder constituting a part of the mixing chamber.

Referring now to the drawings in detail, it will be seen that the mixing machine constituting the present invention comprises a bed 1 which is adapted to rest on top of a tank 2 or other container, said tank or other container forming no part of the present invention. Extending vertically through the bed 1 is a housing 3 from which a flange 4 extends over said bed 1. Combined guide and supporting rods 5 extend vertically through the bed 1 and the flange 4 on diametrically opposite sides of the housing 3, said rods 5 projecting above the bed 1 and extending downward into the tank or other container 2. The rods 5 are secured in position on the bed 1 by the pairs of nuts 6. The rods 5 are preferably of a length to extend to a point adjacent the bottom of the tank or other container 2.

A mixing chamber is designated generally by the reference numeral 7, said chamber being mounted on the rods 5 and comprising a fixed lower cylinder or member 8 and a vertically slidable upper cylinder or member 9 which encircles the cylinder or member 8. Fixed to the lower end portion of the cylinder 8 is a ring 10 having projecting from diametrically opposite sides thereof the apertured ears 11 for the passage of the threaded lower end portions of the rods 5. Pairs of nuts 12 are threaded on the lower end portions of the rods 5 and adjacent with opposite sides of the ears 11 for securing the cylinder 8 on said rods. A ring 13 is fixed on the upper end portion of the cylinder 9 and has projecting from diametrically opposite sides thereof the apertured ears 14 which are slidably engaged with the rods 5. An adjusting rod 15 extends slidably through the bed 1 and has an offset lower end connected, as at 16, to the ring 13. At its upper end the rod 15 terminates in a loop 17 constituting a handle.

Rising from one end portion of the plate 4 is a bracket 18 on the upper end portion of which a locking bar 19 is mounted for swinging movement in a vertical plane. The free end portion of the locking bar 19 is twisted to provide a handle 20. The locking bar 19 is provided with a substantially U-shaped portion 21 for the reception of the adjusting rod 15 and adapted to frictionally grip said

adjusting rod for supporting the upper cylinder 9 in adjusted position.

A vertical propeller shaft 22 is journaled in the housing 3 in a thrust bearing 23 provided therefor in the upper end portion of said housing. A cap 24 is threaded on the upper end portion of the housing 3 for enclosing the thrust bearing 23 in its chamber. The lower end portion of the propeller shaft 22 is journaled in a bearing 25 mounted on a spider 26 in an intermediate portion of the fixed lower cylinder or member 8 of the mixing chamber 7. A propeller 27 is fixed on the lower end portion of the shaft 22 and secured thereon by suitable means including a nut 28. It will thus be seen that the propeller 27 is operable in an intermediate portion of the mixing chamber 7. A tubular casing 29 extends from the housing 3 and encloses the propeller shaft 22 to a point adjacent the propeller 27. A bearing 30 is provided in the lower end portion of the casing 29 for the propeller shaft 22. The casing 29 shields the propeller shaft 22 from contact by the materials being mixed, thus preventing frictional drag from this source.

The upper end portions of the rods 5 also are threaded and secured thereon by the pairs of nuts 31 are the brackets 32 upon which a vertically disposed reversible electric motor 33 is mounted. The propeller shaft 22 is connected to the shaft 34 of the motor 33 for actuation thereby through the medium of a flexible coupling 35 the upper half of which is fixed on the motor shaft 34 and the lower half of which is fixed on the propeller shaft, with a flexible thermoid disc bolted in between metallic couplings forming a flexible universal joint.

In use, the machine is mounted in position on the tank 2 or other container and when the motor 33 is energized the propeller 27 rotates and, if rotating in one direction, the material is drawn from the upper portion of the tank down through the mixing chamber 7 from the upper end thereof and ejected through the lower end of the mixing chamber into the lower portion of the tank. This is clearly indicated by the arrows in Figure 1 of the drawings. Of course, if the electric motor 33 is reversed, the direction of flow of the materials being mixed through the chamber is likewise reversed. The flow of the materials being mixed through the chamber 7 may be conveniently regulated as desired by raising or lowering the upper cylinder 9 through the medium of the adjusting rod 15. This adjustment is necessary or most desirable for greater efficiency in treating various materials. As hereinbefore explained, the adjusting rod 15 is secured by the locking bar 19 to maintain the upper cylinder 9 of the mixing chamber 7 in adjusted position.

It is believed that the many advantages of a portable mixing machine constructed in accordance with the present invention will be readily understood, and although the preferred embodiment of the invention is as illustrated and described, it is to be understood that changes in the details of construction and in the combination and arrangement of parts may be resorted to which will fall within the scope of the invention as claimed.

What is claimed is:—

A mixing machine comprising a support, rods mounted on the support and extending above and below the same, a motor mounted on the rods above the support, a mixing chamber mounted on the rods below the support and comprising a lower section fixed on the lower end portion of the rods, and an upper section slidably mounted on the rods and extending telescopically over the fixed section, a shaft, connected to the motor for actuation thereby, extending into the mixing chamber, a propeller fixed on the shaft in the mixing chamber, an adjusting rod connected to the slidable section and extending slidably through the support, and a locking bar pivotally mounted on the support and operatively engageable with the adjusting bar for securing the same in adjusted position.

In testimony whereof I affix my signature.

MARION W. URCH.