C. W. HOTTMANN.

MIXER AND SEPARATOR.

APPLICATION FILED MAR. 20, 1920.

1,349,203. Patented Aug. 10, 1920.

2 SHEETS—SHEET 1.

Fig. 1.

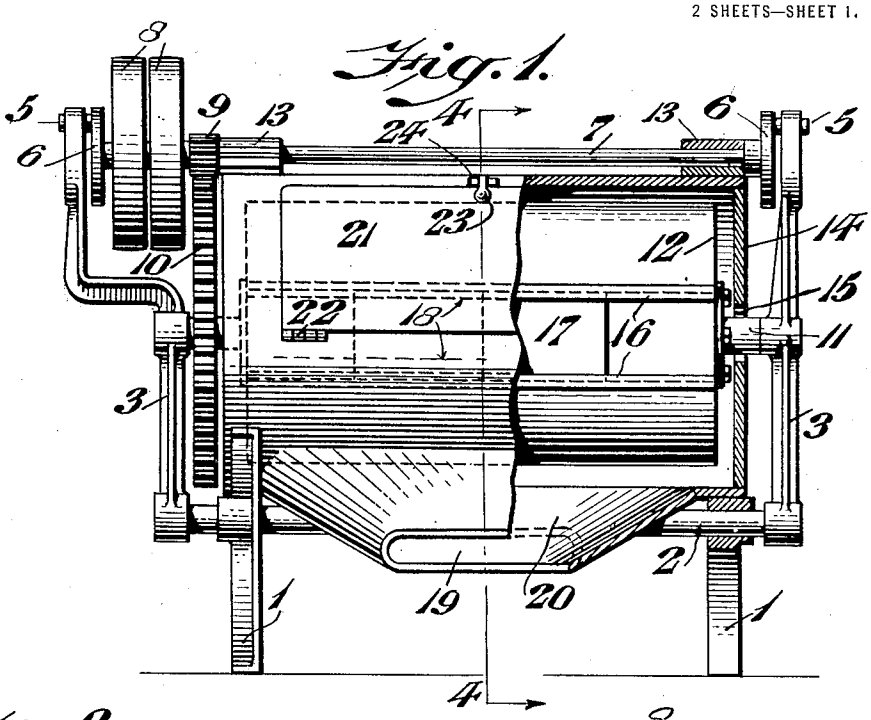


Fig. 2.

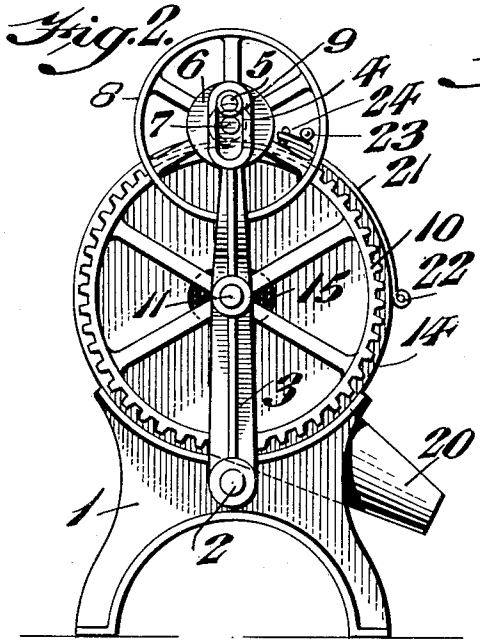
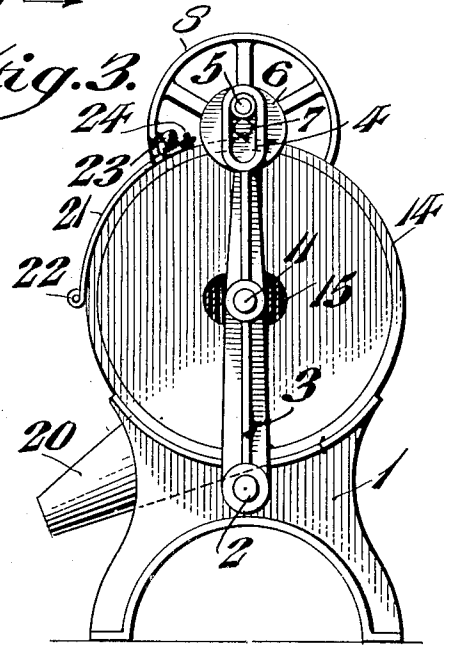


Fig. 3.



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2 SHEETS—SHEET 2.

Fig. 4.

ON LINE. 4-4. FIG. 1.

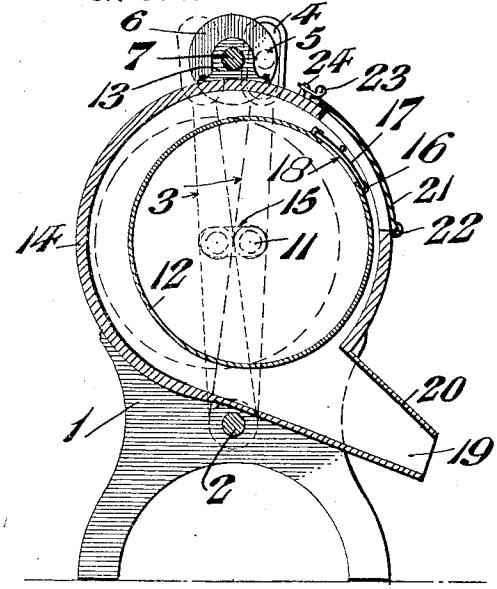
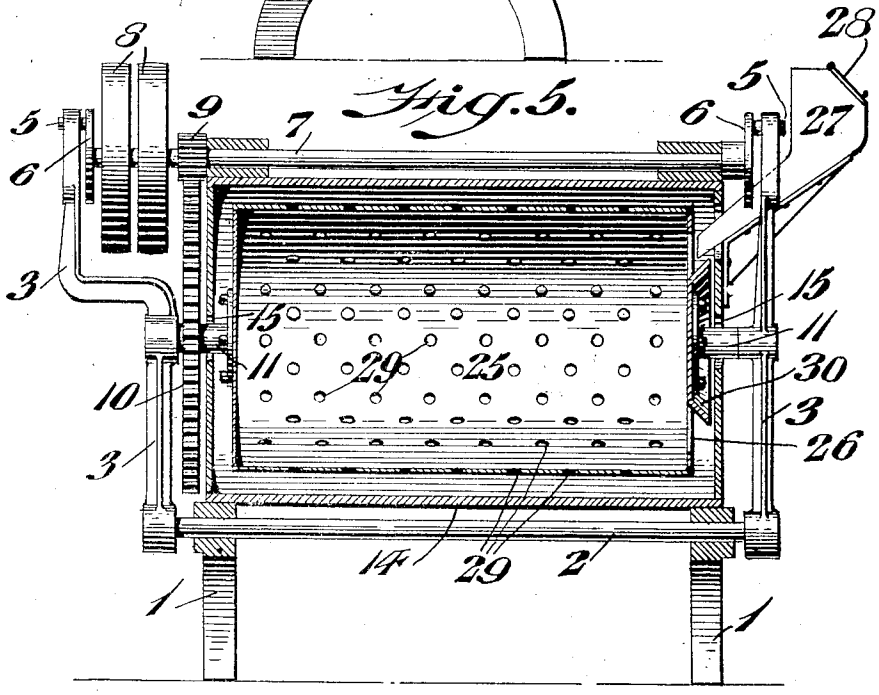


Fig. 5.



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MIXER AND SEPARATOR.

1,349,203. Specification of Letters Patent. Patented Aug. 10, 1920.

Application filed March 20, 1920. Serial No. 367,326.

To all whom it may concern:

Be it known that I, CHARLES W. HOTTMANN, a citizen of the United States, residing in the city and county of Philadelphia, State of Pennsylvania, have invented a new and useful Mixer and Separator, of which the following is a specification.

My present invention comprehends a novel construction and arrangement of a mixer and separator wherein novel means are employed to impart to a container an eccentric movement during its rotation.

It further comprehends a novel construction and arrangement of an inner container and an outer casing and novel means for actuating the inner container.

Other novel features of construction and advantage will hereinafter more clearly appear in the detailed description.

For the purpose of illustrating my invention, I have shown in the accompanying drawings typical embodiments thereof which are at present preferred by me, since said embodiments will be found in practice to give satisfactory and reliable results, although it is to be understood that the various instrumentalities of which my invention consists can be variously arranged and organized and that my invention is not limited to the precise arrangement and organization of these instrumentalities as herein shown and described.

Figure 1 represents a front elevation partly in section of a mixer and separator embodying my invention.

Fig. 2 represents an end elevation of the construction seen in Fig. 1.

Fig. 3 represents in elevation the opposite end from that seen in Fig. 2.

Fig. 4 represents a section on line 4—4 of Fig. 1.

Fig. 5 represents a longitudinal section of another embodiment of my invention.

Similar numerals of reference indicate corresponding parts.

Referring to the drawings.

1 designates the base or supporting framework of a mixer and separator embodying my invention. 2 is a shaft journaled in the base 1 and having fixed to it the lower ends of the crank arms 3 which at their upper ends are slotted as at 4 to receive the crank pins 5 secured to the crank disks 6 which latter are mounted on the shaft 7. This shaft 7 is driven in any desired manner and as illustrated is provided with pulleys 8 which are driven by any desired source of power. One of the crank arms 3 is offset to provide for the assembling of the pulleys 8 on the shaft 7. The shaft 7 carries a pinion 9 which meshes with a gear 10 fixed to one of the stud shafts 11 which latter are fixed to the rotatable article container 12 in any desired manner. The stud shafts 11 extend into the crank arms 3 and are rotatably journaled therein so that the rotatable article container 12 is carried and supported by such crank arms. The journals 13 of the shaft 7 are supported on an outer casing 14, the ends of which are provided with apertures 15 through which the stud shafts 11 pass and these apertures are of sufficient size to permit the eccentric travel of the stud shafts 11 which is occasioned by the crank arms 3.

The container 12 is provided with guides 16 for a sliding door or closure 17 which controls the replenishing and delivery opening 18. The casing 14 which is stationary has a discharge outlet 19 at its bottom formed by a spout 20. The casing 14 is provided near its upper end with a door 21 hinged to it at 22 and provided with a lock 23 which engages a member 24 carried by the casing 14.

In the construction which I have just described which relates more particularly to Figs. 1 to 4 inclusive, the device is used as a mixer and the wall of the article container 12 is unapertured. The only difference between the embodiment seen in Fig. 5 and that seen in the other figures is that the article container is foraminated and in order to illustrate one type of such container, I have shown the wall thereof as being provided with a multiplicity of apertures, although the result which it is desired to attain may be accomplished by employing many different types of containers.

In this embodiment seen in Fig. 5 the actuating mechanism is the same as that already described in connection with the other figures and I have therefore deemed it unnecessary to describe such parts in detail as it would involve needless repetition and I have applied to corresponding parts the same reference character.

The article container 25 as in the case of the article container 12 may have any desired contour but is preferably made cylin-

drical having closed ends but in the case of the article container 25, in Fig. 5, one end is provided with the openings 26 through an end wall in order that the material may be fed into the inner container from a hopper 27 which extends through an opening in the outer casing 14 so that the material will be discharged when desired directly into the article container 25. The hopper is provided with a closure 28 and is supported in any desired manner in the present instance being carried by the outer casing 14. The article container is provided with a desired number of apertures 29 and at the filling end is provided with an annular flange 30. It will of course be understood that the article container 25 is provided with a removable closure whereby the material may be emptied therefrom similar to that shown in Figs. 1 to 4 inclusive and the outer casing 14 is in a similar manner provided with a discharge outlet corresponding to the discharge outlet 19.

The operation of my novel mixer and separator will now be readily apparent to those skilled in this art and is as follows:—

Referring first to Figs. 1 to 4 inclusive the materials which are to be mixed are placed in the article container 12 and the door 17 closed and the door or closure 21 is also closed. The machine is now started thereby causing the shaft 7 which is the main driving shaft to revolve and as this shaft is intergeared with the article container 12 such article container will be continuously revolved. During its revolution, however, an eccentric movement is imparted to it since such article container is journaled in the crank arms 3 which are actuated by the crank pins 5 carried by the crank disks 6 which are secured to the main driving shaft 7.

As soon as the materials which have been placed in the article container 12 have been mixed to the desired degree or extent the machine is stopped, the door 17 is opened and the mixed material is discharged through the opening 18 into the outer casing 14 and discharged from such outer casing 14 through the discharge outlet 19 which is formed by the spout 20.

In the embodiment seen in Fig. 5 the operation is the same except that the smaller material or materials which are of such contour that they will pass through the apertures 29 will be separated and pass into the outer casing 14 and be discharged therefrom through its outlet. The article container 25 is driven in a similar manner and has the same movement as that of the article container 12 which has already been described.

It will be seen that the article container in each case is mounted in crank arms which are driven by a crank pin and at the same time a continuous revolution of the article container is effected since such article container is intergeared with the driving shaft 7 which carries the crank disks 6 which effect the operation of the crank arms 3.

It will now be apparent that I have devised a novel and useful construction of a mixer and separator which embodies the features of advantage enumerated as desirable in the statement of the invention and the above description, and while I have, in the present instance, shown and described preferred embodiments thereof which will be found in practice to give satisfactory and reliable results, it is to be understood that such embodiments are susceptible of modification in various particulars without departing from the spirit or scope of the invention or sacrificing any of its advantages.

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

1. In a device of the character stated, an outer casing having a discharge outlet and provided with an inlet opening, an article container within said outer casing, crank arms on which said article container is mounted, means to actuate said crank arms, and means to continuously revolve said article container.

2. In a device of the character stated, a stationary casing having a discharge outlet and having a controllable filling opening, an article container within said casing and having trunnions extending exteriorly of said casing, said article container having a controllable opening, crank arms in which said trunnions are journaled, driving means for said crank arms, and connections between said driving means and the article container whereby it is continuously revolved.

3. In a device of the character stated, a stationary casing having a discharge outlet, an article container within said casing and having trunnions extending through the walls of the casing, crank arms in which said trunnions are journaled and rotatably mounted at one end, crank pins coöperating with the other ends of said crank arms to actuate them, a shaft operatively connected with said crank pins to drive them, and gearing connecting said shaft and one of said trunnions whereby said article container has imparted to it an eccentric movement and a continuous revolving movement.

4. In a device of the character stated, an outer casing, an article container rotatably mounted in said casing and having trunnions extending through the walls of said casing, a crank shaft movably mounted and in which said trunnions are journaled, means to actuate said crank shaft, and means to continuously revolve said article container.

5. In a device of the character stated, an outer casing, an article container within said

casing and provided with apertures and having trunnions extending through the walls of said casing, a crank shaft movably mounted and in which said trunnions are journaled, means to actuate said crank shaft, and means to continuously revolve said article container.

6. In a device of the character stated, an outer casing having a discharge outlet and a controllable opening, an article container within said casing and provided with a controllable opening and having trunnions, crank shafts movably mounted at one end and having trunnions journaled in them intermediate the ends of the crank shafts, crank pins coöperating with the opposite ends of said crank shafts, a shaft operatively connected with said crank pins to actuate them, and means actuated by said shaft to continuously revolve said article container during the eccentric movement imparted to it by said crank shafts.

CHARLES W. HOTTMANN.

Witnesses:
H. S. FAIRBANKS,
C. D. MCVAY.