Jan. 24, 1956 N. V. M. IVARSSON 2,732,186

MIXER FOR THE CONTINUOUS MIXING OF MIXED PRODUCTS

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FIG. 1

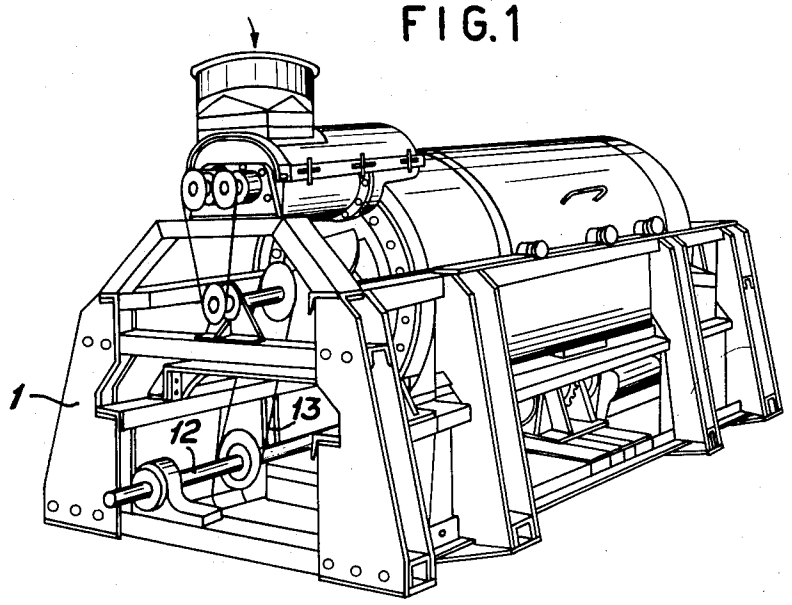
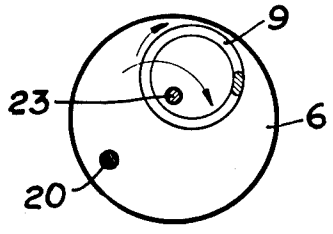


FIG. 2



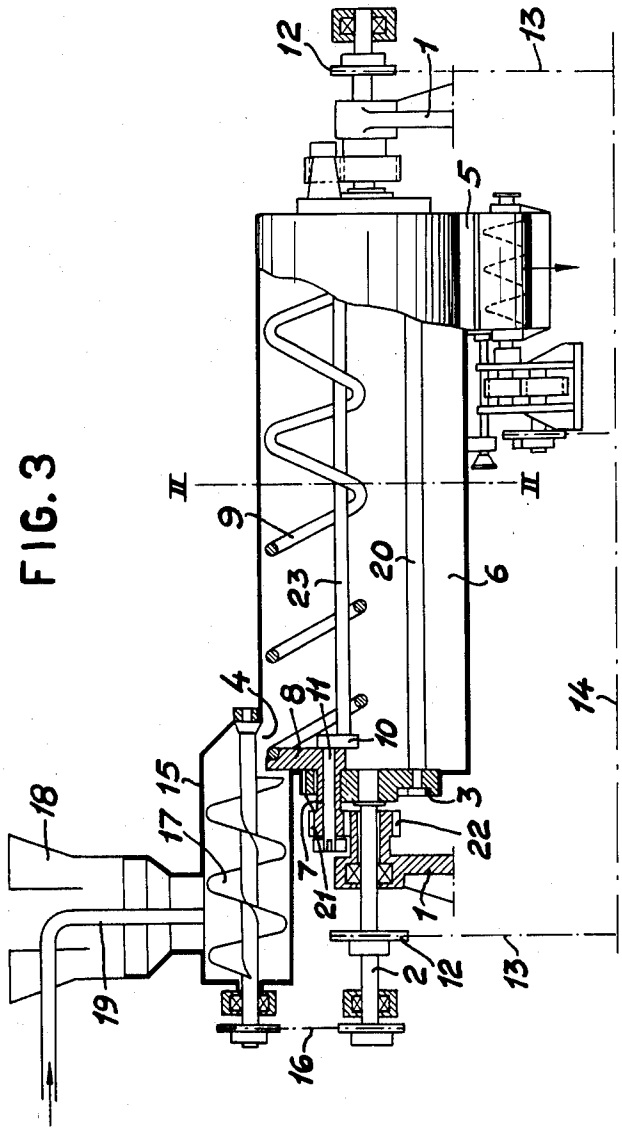
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FIG. 3



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MIXER FOR THE CONTINUOUS MIXING OF MIXED PRODUCTS

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Claims priority, application Sweden June 6, 1952

3 Claims. (Cl. 259—102)

The present invention relates to mixers and provides an efficient mixer of simple structure.

One object of the invention is to provide in a mixer a gyratory stirrer mounted on rotating plates at each end of the mixing chamber, the rotary plates being driven from a common power source and the gyratory stirrer being actuated by the rotation of the plates.

A further object of the invention is to provide a stirrer that will efficiently mix materials placed in one end of a mixing chamber and withdrawn at the other end thereof.

Other and further objects of the invention will become apparent from the following description taken with the accompanying drawings in which:

Figure 1 is a general prospective view of the mixing device,

Figure 2 is a section through the mixing chamber and stirrer taken on line II—II of Figure 3, and,

Figure 3 is a view partly in longitudinal section and partly broken away of the mixing chamber, stirrer and drive therefor.

In the drawings, Figure 3, it is seen that the mixing device comprises a mixing chamber **6** shown in this case to be generally cylindrical, into which materials to be mixed are introduced through a chamber **15** by means of a screw **17** and opening **4**. At each end of the cylindrical mixing chamber there is a rotating disc **3** supported on a shaft **2** coaxially with said disc and mounted for rotation in a bearing in frame element **1**. Each of the shafts **2** is rotated by a sprocket **12** driven by a chain **13** from a countershaft **14**. It is seen that by this means the two rotary plates **3** revolve at the same speed and in the same direction.

A pinion means **22** is formed coaxially with and surrounding each shaft **2** between the frame support bearing **1** and the rotary disc. Each disc **3** is provided with a bearing aperture through which a shaft **7** extends. On the outer end of shaft **7** is a pinion **21** meshing with pinion **22**. On the inner end of shaft **7** is an eccentric disc **8** on which is mounted a helical stirring rod **9** connecting the two eccentric discs **8** together coaxially. Coaxial with each shaft **7** is a shaft **11** passing therethrough. On the inner end of shaft **11** is a crank element **10**. A stirring rod **23** connects the free ends of cranks **10**. A third stirring rod **20** connects the two discs **3** beyond the orbit of gyration of eccentric **8**.

It will be noted that as the shafts **2** rotate the discs **3** the pinions **21** will roll around pinions **22** which will cause the assemblage **7, 8, 9, 10, 11** and **23** to gyrate as well as to rotate within the mixing chamber **6**. By rotating shaft **11** with respect to **7** the adjustment of stirring rod **23**

with respect to stirring rod **9** may be effected. The helical configuration of stirring rod **9** has the effect of operating not only to mix the ingredients within the chamber **6** but also it tends to move the ingredients from the inlet **4** towards the outlet **5** of said chamber as they are mixed.

It is, of course, apparent that more than one assemblage **7, 8, 9, 10, 11** and **23** may be provided and also that more than one stirring rod **20** may be provided within the scope of the present invention.

While one embodiment of the invention has been disclosed, it is to be understood that the inventive idea may be carried out in a number of ways and it is the intention of this application to cover the variations and modifications thereof falling within the spirit of the invention or the scope of the appended claims.

I claim:

1. A mixer comprising a stationary tank, end walls of said tank each comprising a disc rotatable in and forming part of said end walls, said discs being axially aligned, driving means to rotate said discs in unison, hollow shafts mounted eccentrically of and passing through each of said discs, pinions formed on the outer ends of said hollow shafts, stationary gears mounted coaxially with the said discs and meshing with said pinions, a crank carried by each of the said hollow shafts on their inboard ends, a stirrer mounted on said cranks, second cranks within the tank mounted on shafts passing through the hollows of said hollow shafts, and a second stirrer mounted on said second cranks.

2. A mixer comprising a stationary cylindrical container, each end of said container being provided with a disc, each said disc mounted on a first shaft supported in a bearing exteriorly of said container, means for driving said shafts to rotate said discs in the same direction and at the same speed, a pair of rotatable second shafts, one extending through each said disc eccentric to said first shafts but in alignment with each other, said shafts each being provided interiorly of said container with an eccentric, a helical stirring rod coaxial with said eccentrics and secured thereto, said second shafts each having a pinion secured on its outer end, stationary pinions mounted coaxially of said first shafts meshing with the pinions on said second shafts whereby said helical stirring rod will be moved in a gyratory path within said receptacle.

3. The device of claim 2 in which said second shafts are each provided with a coaxial bore in which is a third shaft, a crank mounted on the inner ends of said third shafts, and a stirrer connecting said cranks within said container and lying within said helical stirrer, whereby said stirrer connecting said cranks may be moved parallel with itself in a circular path by rotation of said third shaft.

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