

G. H. PETRI.
MIXING MACHINERY.
APPLICATION FILED NOV. 17, 1909.

957,088.

Patented May 3, 1910.

FIG. 1.

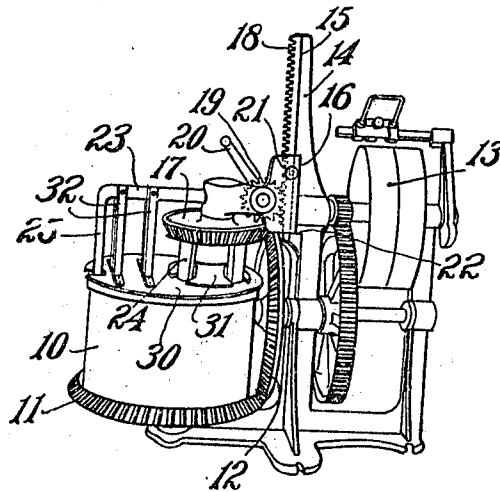


FIG. 3.

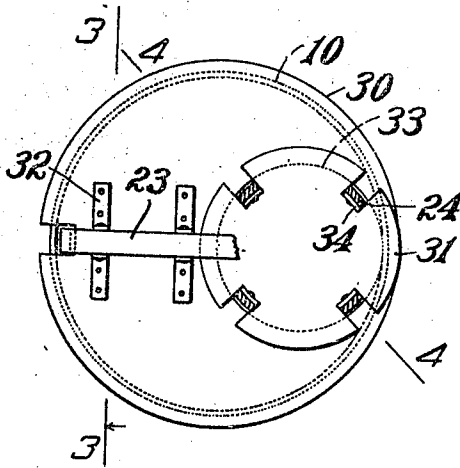
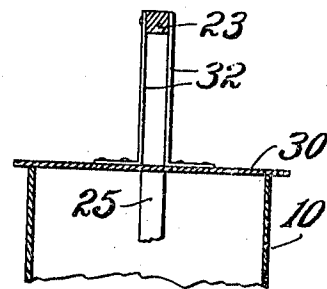
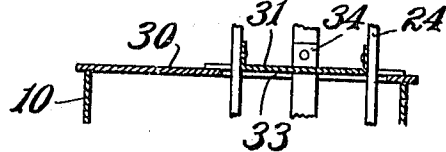


FIG. 2.

FIG. 4.



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MIXING MACHINERY.

957,088.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, GUNTHER H. PETRI, a citizen of the United States, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented new and useful Improvements in Mixing Machinery, of which the following is a specification.

This invention relates to improvements in mixing machines.

10 In machinery for mixing dough, for creaming eggs and sugar, or for mixing powdered or plastic materials of any sort, apparatus has heretofore been used in which a can is mounted on a rotating platform 15 above which are mounted rotating arms at a fixed eccentric location, which arms project into the can and stir such of the contents as come within their reach during the rotation of the can. Such apparatus sometimes also 20 has a stationary arm, which projects into the rotating can and scrapes its interior wall. Such apparatus has hitherto been open-topped, on account of the complexity of motions of the parts relative to each other, resulting from the fact that the can 25 top is rotating at the same time that some of the arms projecting through the top and covering a substantial portion of its area are engaged in a different rotation, and at 30 the same time that one or more arms projecting through the top are stationary.

If the can could be effectually covered while the mixing is in process, the capacity of the apparatus would be materially in- 35 creased because a larger portion, say ten, twenty or more per cent., of material could be placed in the can without material being spattered out during the agitation; and the scope of usefulness of the apparatus would 40 be enlarged because mixtures of substances having highly evaporative ingredients such as gasoline could be made.

It is the object of the present invention to provide such a cover.

45 One embodiment of the invention is illustrated in the accompanying drawings in which,

Figure 1 is a perspective of a mixing apparatus embodying the invention; Fig. 2 is a plan of the can and its covers; Fig. 3 is an elevation of a detail on an enlarged scale in section on the line 3—3 of Fig. 2; and Fig. 4 50 is an elevation of a detail on the enlarged scale in section on line 4—4 of Fig. 2.

55 Referring to the drawings, the complete apparatus is seen in Fig. 1. 10 is the can

containing the materials to be mixed and 11 is a rotating platform holding the can. This platform is really a bevel gear, the teeth of which are engaged and driven by bevel gear 60 12, which in turn is driven through intermediate gearing from the driving pulley 13. A standard 14 has vertical ways 15 on which slides a block 16 carrying a bevel gear 17 parallel to bevel gear 11, being set on a ver- 65 tical axis located over the position which the can 10 occupies. This block 16 may be raised or lowered on ways 15, and for convenience in so raising or lowering it a rack 18 and pinion 19 are provided, the pinion 70 being on the block and being actuated by a crank 20. A set screw 21 is provided by which the apparatus may be fixed at any desired elevation. When in use, however, the block is at its lowest elevation where it rests 75 on the shoulder 22 with the bevel gear 17 meshing with and driven by the bevel gear 12. When in this position the arms 24, which are represented as four in number, project downward from the bevel gear into 80 the can 10 and revolve therein, turning about the axis of gear 17 which, as will be seen, is not the same as the axis of the gear 11 and the rotating can 10. The block 16 also carries an arm 23 which has a downward pro- 85 jecting portion 25 adapted to engage and scrape the interior vertical wall of the can 10 as such wall passes by it in its rotation about the axis of gear 11.

The embodiment of the invention which is 90 herein particularly described consists of two covers 30 and 31 which, jointly, cover the entire surface of the can. Neither of these rests upon the rotating can, but both are suspended above it. The cover 30 is at- 95 tached to the stationary arm 23 by straps 32 and is therefore stationary. It covers the entire top of the can except that portion which is within the area circumscribed by the revolving arms 24. A circular opening is 100 left in the cover 30 through which these arms project into the can and within which they rotate freely, this opening being marked by the dotted line 33 in Fig. 2 and being seen in Fig. 4. The cover 31 lies over this 105 opening and is supported by the revolving arms 24 and consequently revolves with them. It is set on these arms at a different elevation from the elevation of the cover 30, preferably just above it, as shown in Figs. 110 2 and 4. Thus it will be seen that the rotating can 10 is covered by a stationary cover 30,

having an opening 33 which opening is covered by a rotating cover 31. As these find their ultimate support in the traveling block 16, and rise and fall with the arms 24 and 25, it follows that the apparatus is always covered when at work; and is automatically uncovered by the operation of raising the mixing arms out of the can. Cover 31 is supported on the mixing arms by cutting and folding up ears 34 from the edges of the sheet metal comprising the cover and riveting them to the arms 24, but obviously many other styles of fastening might be employed; and in general, variations may be made from the specific structure here described without departing from the scope of the invention.

It will be noted that the cover 30 projects beyond the edges of the can; and likewise the cover 31 projects beyond the edges of the hole 33 which it covers. These projecting edges serve to make the covers effective, notwithstanding the diversity of motion between themselves and the parts having the openings which they cover, and, in the case of the revolving arms 24, they enable adequate clearance to be provided between said arms and the edges of hole 33, which clearance they effectively cover.

I claim:

1. In combination, mixing apparatus, comprising a can, mixing arms arranged eccentrically therein and means to rotate the can and arms diversely; a cover for the can stationarily mounted, having an opening through which the mixing arms enter the can; a cover for said opening; and means whereby the second cover rotates with said arms.

2. In combination, mixing apparatus, comprising a can, means to move the can in a definite path; a mixing device located in a field stationary over said path; means to impart motion to said device in its said stationary position, diverse from the motion of the can; a stationarily mounted cover over said path having an opening including the

field of movement of said mixing device where it passes through the cover; and an auxiliary cover covering said opening, supported and moving with said device.

3. In combination, mixing apparatus, comprising a can, mixing arms set at distances from each other and means to rotate the can and arms diversely; a stationary cover for the can having an opening in which the mixing arms are; the cover for said opening, occupying space between the arms, comprising a disk arranged perpendicular to the axis of rotation of the arms and having its material slit at the periphery, forming ears, attached to said arms.

4. In mixing apparatus, a rotating can, arms within it; means to raise and lower them with respect to the can; means to rotate one of the mixing arms, one being stationary; and covers for the can, one mounted on the rotating arm and covering the field of its rotation, said field being eccentric to the rotation of the can; the other on the stationary arm and covering the remainder of the can.

5. In mixing apparatus, the combination of a rotating can; a stationary cover therefor having eccentrically an opening for entrance of rotating mixing arms; there being means to support such mixing arms; and a cover for said opening sustained by said support.

6. In mixing apparatus, the combination of a rotating can adapted to receive mixing arms entering through its top, a two part cover therefor, supported independently of the can; one of said parts of the cover having an opening wherein moving mixing arms may be; and the other part covering said opening and overlapping surrounding portions of the first part.

Signed by me at Boston, Massachusetts this 13th day of November, 1909.

GUNTHER H. PETRI.

Witnesses:

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