

Nov. 26, 1935.

F. A. SCHLETZ

2,022,527

MIXING MACHINE

Filed Sept. 29, 1934

2 Sheets-Sheet 1

Fig. 2

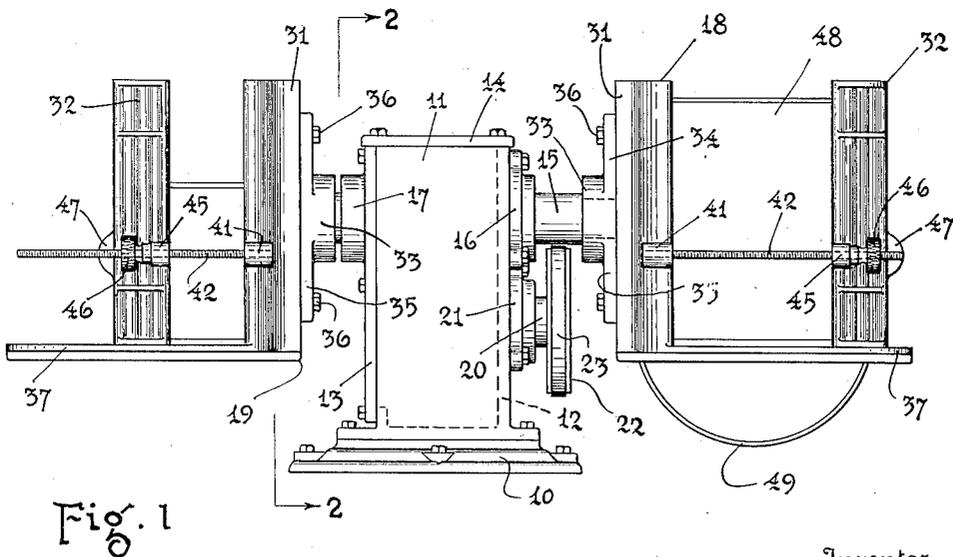
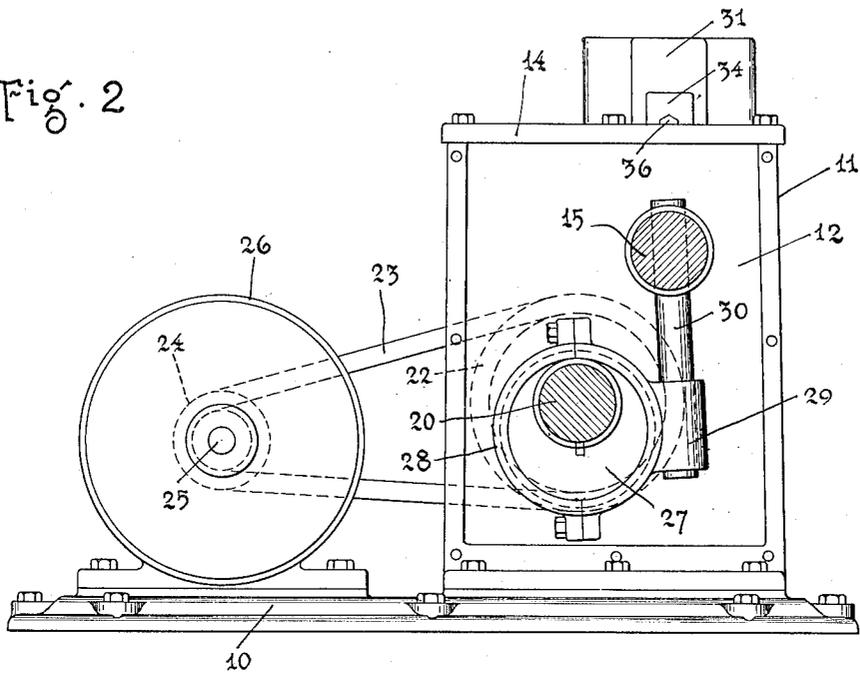


Fig. 1

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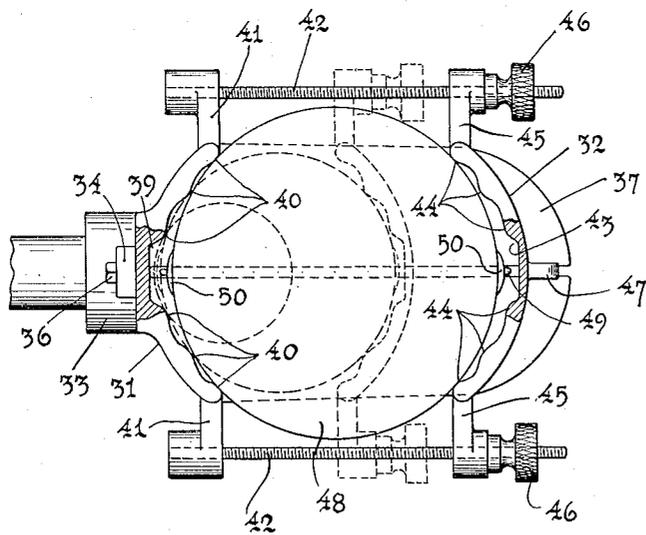
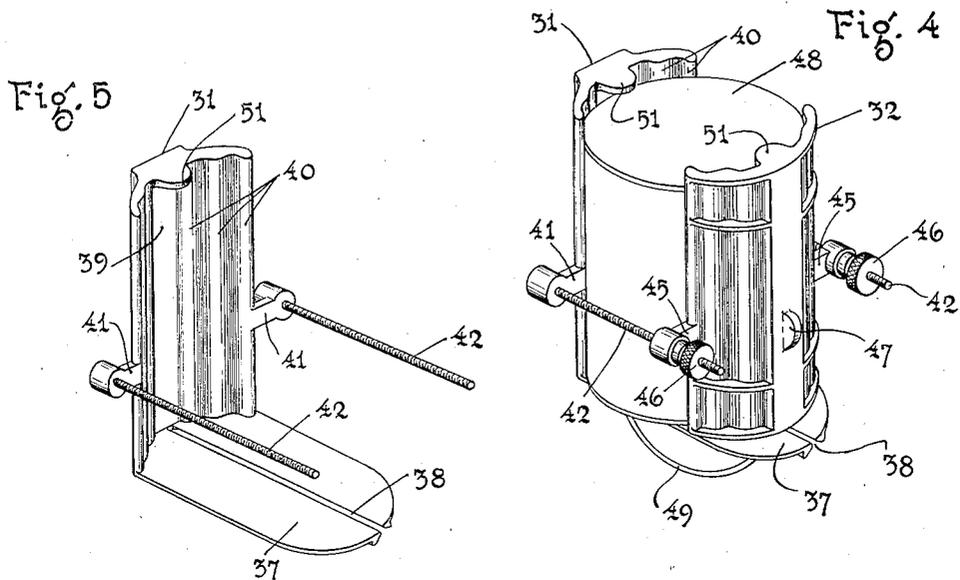


Fig. 3

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UNITED STATES PATENT OFFICE

2,022,527

MIXING MACHINE

Fred A. Schletz, St. Paul, Minn.

Application September 29, 1934, Serial No. 746,154

9 Claims. (Cl. 259—56)

My invention pertains to machines for mixing ingredients in their original containers and relates particularly to paint mixing machines and to can holders therefor.

An object of the invention is to provide a simple, durable and efficient mixing machine including an oscillatory can holder of improved construction adapted readily to receive and securely grip cans of different diameters, including cans with bails thereon.

Another object of the invention is to provide a can holder of the present character including a supporting jaw formed with a shelf adapted to receive the bailed end of a can and further including a complementary jaw, the shelf having a slot therein to receive the can bail and the jaws being formed with grooves to receive the bail ears on the can and the adjacent portions of the bail.

A further object of the invention is to provide a durable holder of the present character having simple and effective jaw clamping means constructed and arranged to promote the balancing of the oscillatory structure.

With the foregoing and other objects in view, which will appear in the following description, the invention resides in the novel combination and arrangement of parts and in the details of construction hereinafter described and claimed.

In the drawings, Fig. 1 is an elevational view of a mixing machine embodying my invention; Fig. 2 is a sectional view, taken as on the line 2—2 of Fig. 1, with one of the case plates removed, said view illustrating the mechanism within the case; Fig. 3 is an elevational view in detail of one of the can holders, portions of the jaws being broken away to show the medial longitudinal grooves in the faces thereof; Fig. 4 is a perspective view of the structure shown in Fig. 3, and Fig. 5 is a perspective view, in detail, of the supporting jaw.

Referring to the drawings, it will be seen that the illustrated structure includes a base 10, and case 11 thereon having end plates 12, 13 and a cover plate 14, the end plate 13 and cover plate 14 being removably secured to the case proper. A rock-shaft 15, extending through the case 11 and journaled in bearings 16 and 17 on the end plates 12 and 13, carries holders 18 and 19 at the ends thereof. Disposed chiefly within the case 11 and spanning the space between the end walls 12, 13 of said case is an eccentric shaft 20, one end thereof being journaled in a bearing (not shown) on the inner face of the end plate 13, the other end thereof being journaled in a

bearing 21 on the outer face of the end plate 12. Secured to the outer end of said eccentric shaft 20 is a pulley 22 which is connected through a belt 23 with a drive pulley 24 on the armature shaft 25 of an electric motor 26 secured to the base 10. On the shaft 20, within the case 11, is an eccentric disk 27 encircled by an eccentric strap 28 formed with an elongated boss 29 thereon disposed tangentially of said strap, said boss being formed with a bore longitudinally thereof. This boss 29 forms a bearing which slidably receives a rod or arm 30 depending from the rock-shaft 15. With the eccentric shaft 20 connected with the rock-shaft 15 through the eccentric disk 27, eccentric strap 28 and arm 30, the rock-shaft 15 is oscillated to and fro when the motor 26 is operated, the oscillation of said rock-shaft being attended with an uneven motion characterized by a relatively quick throw of said shaft in one direction.

The holders 18 and 19 are similar in construction, and a detailed description of one thereof will apply to the other. The holder construction, as best seen in Figs. 3 to 5, includes an elongated stationary jaw 31 and an elongated complementary jaw 32, the former being secured to an end of the rock-shaft 15 in substantially upright position by a mounting coupler consisting of a boss 33 with an upwardly projecting ear 34 and a depending ear 35. The boss 33 is keyed to the rock-shaft 15 and the ears 34, 35 are bolted to the jaw 31 by bolts 36, as shown. Projecting from the face of the supporting jaw 31 at the lower end thereof is a shelf 37. This shelf is formed with a slot 38 centrally longitudinally thereof and the jaw 31 is formed with a groove 39 likewise centrally longitudinally thereof, both slot and groove being intercepted medially thereof by a plane common thereto and which intercepts the axis of the rock-shaft 15. The slot 38, shown as being open ended at the outer end of said shelf 37, is cut back at its other or inner end to the full depth of the groove 39 in the jaw proper.

The jaw 31 is arcuate in transverse cross section, the face thereof being symmetrically formed with longitudinal ribs 40 at either side of the groove 39, the corresponding ribs constituting paired contacting ridges for engagement with the cylindrical surfaces of cans of different sizes placed on end upon the shelf 37. Between the upper and lower ends of the supporting jaw 31 and extending from the sides thereof are opposed ears 41 from which threaded guide rods 42 extend outwardly in parallelism with the shelf 37.

The complementary jaw 32 is substantially of 55

the same construction as the supporting jaw 31, it being formed at its arcuate face with a central longitudinal groove 43 and longitudinal ribs 44 and at its sides with opposed ears 45. These ears 45 have bores or guideways therethrough which slidably receive the guide rods 42, said guide rods being provided with finger nuts 46 threaded thereon and adapted to be turned against said ears 45 of the jaw 32 to clamp the face thereof against a can and, in turn, clamp the can against the face of the supporting jaw 31.

In the use of my machine, the finger nuts 46 are, at the outset, turned back on the guide rods 42 to permit of the retraction thereon of the jaw 32 sufficiently to allow the insertion of a can, bail end down, between the jaws 31, 32 the retraction of the jaw 32 being facilitated through the use of a finger piece 47 located at the back of the jaw 32 between the ears 45. Upon applying a can, as at 48, to the jaws 31, 32 of the holder, it will be disposed in such angular relation with respect to said jaws that the bail, as at 49, will thread through the slot 38 in the shelf as the can is lowered to the shelf. In this relation of the can, the bail ears, as at 50 (Fig. 3), are brought opposite the grooves 39, 43 in the jaws 31, 32 and are received within said grooves together with adjacent portions of the bail 49 when the jaws are clamped against the can. In thus clamping said jaws, it is only necessary to turn and advance the finger nuts 46 on the guide rods 42, said nuts in such event being brought against the ears 45 of the jaw 32, with the result that said jaw is clamped against the can and the can, in turn clamped against the supporting jaw 31. The threading of the bail 49 in the slot 38 in the shelf 37 disposes the can on end, upside down, in which position thereof, the most effective mixing action may be had. Also, in disposing the can 48 with the bail threaded in said slot, the ears 50 of the can are directed into the medial grooves 39, 43 of the closing jaws 31, 32 and thus protected against injurious contact with the faces of said jaws. Furthermore, the bail 49 is braced in the slot against any hinging movement relative to the can.

With a can clamped in a holder, the motor 26 is started, a rapid oscillation of the rock shaft 15 and of the holder thereupon taking place and effecting a quick and thorough mixing of the contents of the can. As a safety feature, I provide at least one of the jaws 31, 32 with an ear 51 projecting from the face thereof at its upper end and which serves as a limit stop or abutment to engage the upper end of a can and prevent it from creeping out between the jaws should any such tendency occur in the mixing operation. In the drawing, both of the jaws 31, 32 are shown as provided with ears 51. Upon completing a mixing operation, the finger nuts 46 are turned back on the guide rods 42 and the jaw 32 retracted through the employment of the finger piece 47, whereupon the can may be lifted from the holder.

From the foregoing, it will be understood that the present machine constitutes a simple, durable and effective device for mixing ingredients in their containers and particularly paint in original cans including those of the larger sizes fitted with bails. Also, it will be understood that the holder construction is conducive to the rapid application of containers thereto and the similarly rapid removal of containers therefrom. Further, it will be understood that the present holder construction remains similarly balanced in all of

the various relative positions of the two jaws, whereby a holder structure, particularly when not loaded, is secure against breakage through vibration set up in the oscillation of the holders.

Changes in the specific form of my invention, as herein disclosed, may be made within the scope of what is claimed without departing from the spirit of my invention.

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

1. In a mixing machine, a horizontally disposed power driven rock-shaft, a holder including an elongated supporting jaw secured medially at the back thereof and between its ends to an end of said rock-shaft in a substantially upright position, a can supporting shelf projecting outwardly from the face of said jaw at the lower end thereof, said shelf being formed with a medial longitudinal slot therein, said face being transversely concave and formed with a medial longitudinal groove therein and also with longitudinal ribs symmetrically disposed at opposite sides of said groove, the various corresponding ribs presenting paired abutment surfaces for cylindrical cans of different diameters, the middle of said groove and the middle of said slot being in a common plane intersecting the axis of said shaft, the slot being adapted to receive the bail of a can resting upside down on said shelf and the groove being adapted to receive a bail ear of the can and an adjacent portion of the bail, threaded guide rods secured to the opposite sides of the supporting jaw, a complemental jaw similar to said supporting jaw slidably guided on said rods and movable therealong toward and from the supporting jaw in facing relation with respect thereto, and finger nuts on said rods for clamping the complemental jaw against a can on said shelf and, in turn, clamping said can against said supporting jaw.

2. In a mixing machine, a horizontally disposed power driven rock-shaft, a holder including an elongated supporting jaw secured medially at the back thereof and between its ends to an end of said rock-shaft in a substantially upright position, a can supporting shelf projecting outwardly from the face of said jaw at the lower end thereof, said shelf being formed with a medial longitudinal slot therein, said face being transversely concave and formed with a medial longitudinal groove therein, the middle of said groove and the middle of said slot being in a common plane intersecting the axis of said shaft, the slot being adapted to receive the bail of a can resting upside down on said shelf and the groove being adapted to receive a bail ear of the can and an adjacent portion of the bail, a complemental jaw similar to said supporting jaw, means carried by the supporting jaw and movably supporting the complemental jaw, and means for clamping the complemental jaw against a can on said shelf and, in turn, clamping said can against said supporting jaw.

3. In a mixing machine, a horizontally disposed power driven rock-shaft, a holder including an elongated supporting jaw secured medially at the back thereof and between its ends to an end of said rock-shaft in a substantially upright position, a can supporting shelf projecting outwardly from the face of said jaw at the lower end thereof, said shelf being formed with a medial longitudinal slot therein, said face being transversely concave and formed with a medial longitudinal groove therein, the middle of said groove and the middle of said slot being in

a common plane intersecting the axis of said shaft, the slot being adapted to receive the bail of a can resting upside down on said shelf and the groove being adapted to receive a bail ear of the can and an adjacent portion of the bail, a complementary jaw similar to said supporting jaw, means carried by the supporting jaw and movably supporting the complementary jaw, and means for clamping the complementary jaw against a can on said shelf and, in turn, clamping said can against said supporting jaw, said means for supporting said complementary jaw comprising two members secured to opposite sides of the supporting jaw and said clamping means including elements incorporated with said supporting members.

4. In a mixing machine, a horizontally disposed power driven rock-shaft, a holder including an elongated supporting jaw secured medially at the back thereof and between its ends to an end of said rock-shaft in a substantially upright position, a shelf projecting outwardly from the face of said jaw at the lower end thereof, said jaw being formed with oppositely projecting ears at the sides thereof, threaded guide rods secured to said ears on the supporting jaw, said shelf being adapted to support a can in position between said guide rods, a complementary jaw having opposed ears thereon slidably guided on said rods and movable therealong toward and from the supporting jaw in facing relation with respect thereto, finger nuts on said rods adapted to engage the ears on said complementary jaw and clamp the same against a can on said shelf and, in turn, clamp said can against said supporting jaw.

5. In a mixing machine, a horizontally disposed power driven rock-shaft, a holder including an elongated supporting jaw secured medially at the back thereof and between its ends to an end of said rock-shaft in a substantially upright position, a can supporting shelf projecting outwardly from the face of said jaw at the lower end thereof, said shelf being formed with a medial longitudinal slot therein, said face being transversely concave and formed with longitudinal ribs symmetrically disposed at opposite sides of a medial line longitudinally of said face, the various corresponding ribs presenting paired abutment surfaces for cylindrical cans of different diameters, said medial line of said face and said slot lying in a plane intersecting the axis of said shaft, the slot being adapted to receive the bail of a can resting upside down on said shelf and the space between the inner pair of ribs being adapted to receive a bail ear of the can and an adjacent portion of the bail, a complementary jaw, means carried by the supporting jaw and movably supporting said complementary jaw, and means for clamping the complementary jaw against a can on said shelf and, in turn, clamping said can against said supporting jaw.

6. In a mixing machine, a horizontally disposed power driven rock-shaft, a holder including an elongated supporting jaw secured medially at the back thereof and between its ends to an end of said rock-shaft in a substantially upright position, a can supporting shelf projecting outwardly from the face of said jaw at the lower end thereof, said shelf being formed with a medial longitudinal slot therein, said face being transversely concave and formed with a medial

longitudinal groove therein, the middle of said groove and said slot being in a common plane intersecting the axis of said shaft, the slot being adapted to receive the bail of a can resting upside down on said shelf and the groove being adapted to receive a bail ear of the can and an adjacent portion of the bail, a complementary jaw similar to said supporting jaw, means carried by the supporting jaw and movably supporting the complementary jaw, and means for clamping the complementary jaw against a can on said shelf and, in turn, clamping said can against said supporting jaw, one of said jaws having a lug projecting outwardly from the upper edge thereof and constituting an abutment for keeping a can from creeping out of the grip of said jaws.

7. In a mixing machine, a horizontally disposed power driven rock-shaft, a holder including an elongated supporting jaw secured medially at the back thereof and between its ends to an end of said rock-shaft in a substantially upright position, a can supporting shelf projecting outwardly from the face of said jaw at the lower end thereof, said shelf being formed with a medial longitudinal slot therein, said face being transversely concave and formed with a medial longitudinal groove therein, the middle of said groove and said slot being in a common plane intersecting the axis of said shaft, the slot being adapted to receive the bail of a can resting upside down on said shelf and the groove being adapted to receive a bail ear of the can and an adjacent portion of the bail, a complementary jaw similar to said supporting jaw, means carried by the supporting jaw and movably supporting the complementary jaw against a can on said shelf and, in turn, clamping said can against said supporting jaw, one of said jaws having a medially disposed lug projecting outwardly from its face at the upper portion thereof and constituting an abutment for keeping a can from creeping out of the grip of said jaws.

8. In a mixing machine, a rock-shaft, a holder including a supporting jaw secured to said rock-shaft, a can supporting shelf projecting from said jaw, a pair of spaced guides, each secured at an end thereof to said supporting jaw and supported thereby, a complementary jaw mounted on said guides and movable therealong toward and from the supporting jaw in facing relation with respect thereto, and means carried by said guides and cooperating therewith and with said complementary jaw to clamp the latter against a can on said shelf and, in turn, to clamp said can against said supporting jaw, said guides constituting side retainers for a can resting on said shelf.

9. In a mixing machine, a power driven rock-shaft, a holder including a supporting jaw secured to said rock-shaft, a can supporting shelf projecting from said jaw, a complementary jaw, means carried by said supporting jaw and movably supporting said complementary jaw, and means carried by said jaw supporting means and cooperating therewith to clamp the complementary jaw against a can on said shelf and, in turn, clamp said can against said supporting jaw, said jaw supporting means and clamping means being arranged partly on one side and partly on the opposite side of the position occupied by a can resting on said shelf between said jaws.

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