

Sept. 7, 1937.

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2,092,190

DEVICE FOR MIXING PAINT AND OTHER MATERIALS IN CANS

Filed Dec. 3, 1934

2 Sheets-Sheet 1

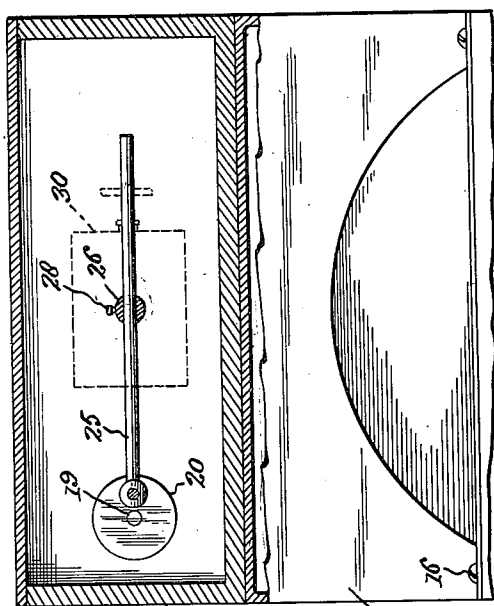


Fig. 1.

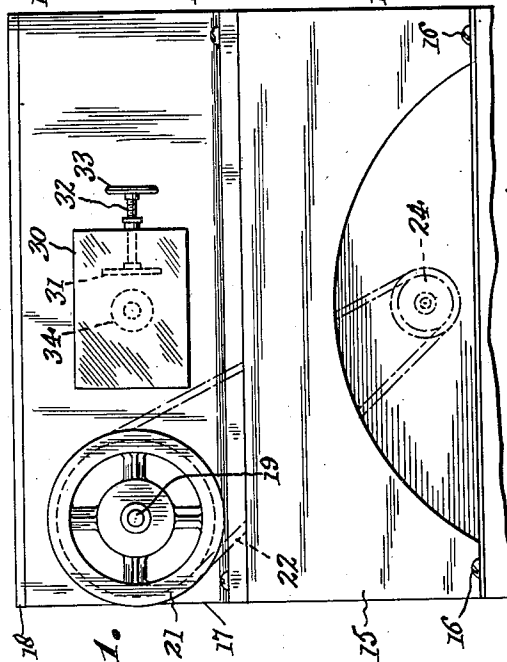


Fig. 2.

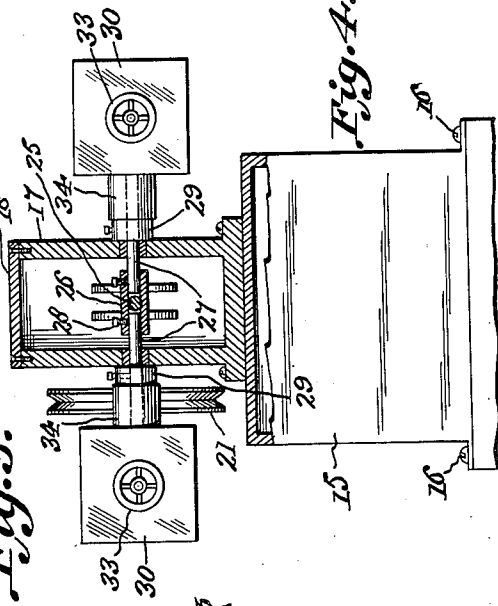


Fig. 3.

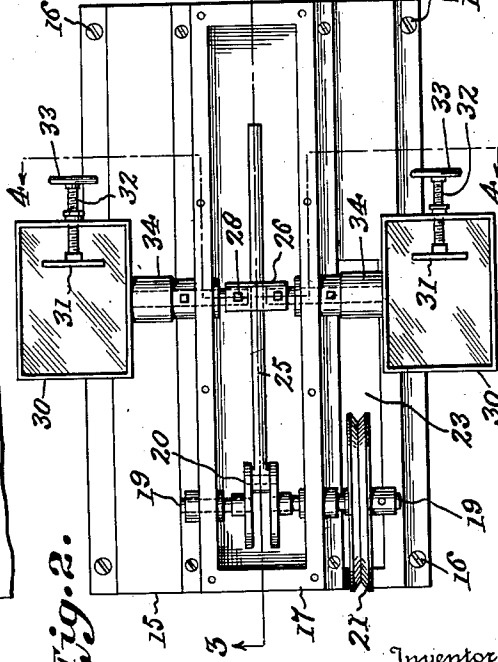


Fig. 4.

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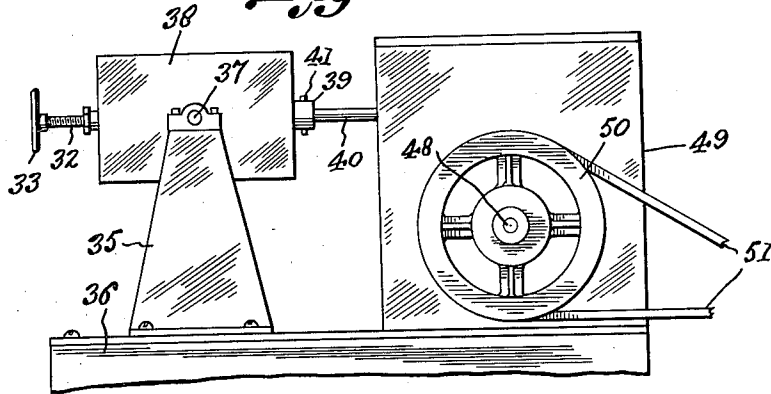
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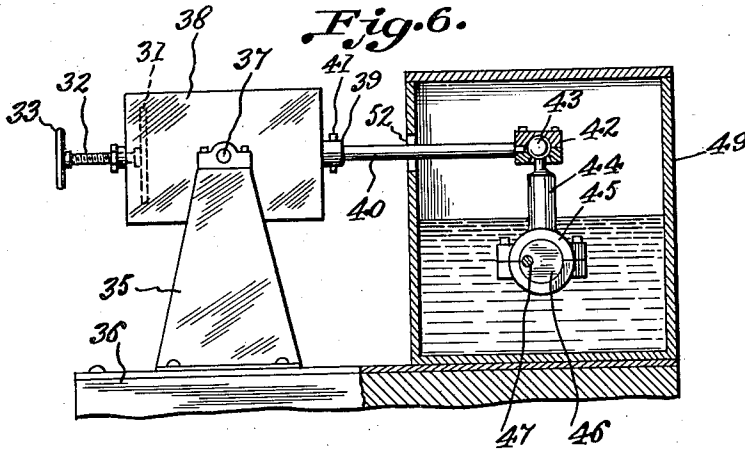
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2 Sheets-Sheet 2

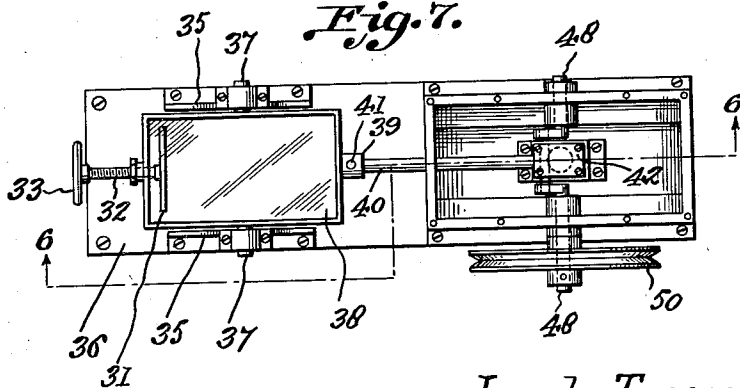
*Fig. 5.*



*Fig. 6.*



*Fig. 7.*



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334

## UNITED STATES PATENT OFFICE

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DEVICE FOR MIXING PAINT AND OTHER  
MATERIALS IN CANS

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Application December 3, 1934, Serial No. 755,839

2 Claims. (Cl. 259—56)

The present invention relates to a device for mixing paint and other materials in cans, so that when cans are stored on shelves and the like for a long period of time and the heavier particles or constituents of the mixture in the cans becomes settled and somewhat solid in the bottoms of the cans, the cans may be treated so as to thoroughly mix and stir up the ingredients therein and thus renew the contents.

10 An object of the present invention is to provide a device or machine of this character which reduces vibration to a minimum and which so operates upon the cans as to thoroughly stir up and admix the ingredients without the great  
15 shock or impact usually resulting from lengthwise displacements of the cans back and forth when being operated upon, and thus the contents within the cans will not be bodily projected or thrown alternately against the opposite ends of the can tending to disrupt the same and create  
20 a compounding action of the machine.

The invention has for a further object the peculiar mounting of a holder for cans so that the holder may oscillate about an axis intersecting  
25 the holder between its ends and to provide means for effecting the oscillation which is directly connected to the holder in the longitudinal plane thereof, and which remains in such plane so as to obtain a direct action on the holder with a  
30 substantial leverage which in itself considerably reduces vibration and requires less effort in the operation of the holder than prior devices of the eccentric or crank type.

A further object of the invention is to provide  
35 a device or machine embodying these features and which is of relatively simple construction and wherein the construction is such that the machine may rest solidly upon a support and wherein the machine may accommodate more than one can  
40 at a time.

With the foregoing and other objects in view, the invention will be more fully described hereinafter, and will be more particularly pointed out in the claims appended hereto.

45 In the drawings, wherein like symbols refer to like or corresponding parts throughout the several views,

Figure 1 is a side elevation of a machine constructed according to the present invention.

50 Figure 2 is a top plan view of the same.

Figure 3 is a vertical section taken through the machine on the line 3—3 of Figure 2.

Figure 4 is a transverse section taken on the line 4—4 of Figure 2.

55 Figure 5 is a side elevation of a slightly modified form of the machine embodying the features of this invention.

Figure 6 is a longitudinal section taken through the same on the line 6—6 of Figure 7, and

Figure 7 is a top plan view of the modified form of machine.

Referring now to the drawings, the body part of the machine comprises a frame 15 which may be in the form of a housing, as shown, and which is of suitable length and width to support the device and which is adapted to be secured by screws 16 or the like to a suitable support.

The frame 15 carries on its upper end a longitudinally extending casing 17 which is closed at its sides and its ends and by a removable top 18 admitting access to the interior parts of the machine. Near one end portion of the casing 17, the latter is provided with a transversely extending crank shaft 19 having suitable bearings in the opposite sides of the casing 17 and which at its intermediate portion is provided with a crank 20 which may be of the double disc and eccentric pin type as shown. One end of the crank shaft 19 extends from the adjacent side of the casing 17 and is provided with a drive pulley 21 or the like over which may be passed a belt 22 which extends downwardly through a slot 23 in the top of the frame 15 and at said side of the casing 17 for passage about a drive pulley 24 of a motor or the like which may be disposed or housed within the bottom of the frame 15. The pulley 21 thus rotates the shaft 19 so as to operate the crank 20. A connecting rod 25 is journaled at one end on the crank 20 and extends lengthwise in the casing 17 and slidably engages through a transversely disposed sleeve 26 suitably apertured intermediate its ends for slidably receiving the connecting rod 25 therethrough. Shaft sections 27 have bearing through the opposite walls of the casing 17 in register with the sleeve 26 and are secured in the opposite ends of the sleeve 26 by set screws 28 or the like, the sleeve 26 and the shaft sections 27 providing a transversely disposed rock shaft structure which extends beyond the opposite sides of the casing 17. Stop collars 29 may be secured by set screws to the shaft sections 27 at the opposite outer sides of the casing 17 to hold the sleeve 26 in equi-distantly spaced relation from the opposite walls of the casing 17 and in line with the crank 20 of the operating shaft. The shaft sections 27 carry on their outer ends can holders 30 which are suitably shaped to receive cans of paint or the like of conventional size and which may be proportioned to receive

cans of various sizes within a practical range. Each holder 30 is provided with a clamping plate 31 mounted on a jack screw 32 which is threaded through one end of the holder 30 and provided with a suitable hand wheel 33 by means of which the clamping plate 31 may be forced up against the end of a can to bind the can between the clamping plate and the opposite end of the holder 30. Each holder 30 is provided with a hub 34 which is suitably fixed upon the adjacent shaft section 27 so that when the shaft sections are rocked or oscillated the holders 30 will correspondingly rock or oscillate about and upon the axis of the shaft sections 27. The shaft sections 27 thus provide supporting means for the can holders 30 and also an operating means therefor.

From Figure 3, it will be noted that the connecting rod 25 is slidable through the sleeve 26 so that the connecting rod engages the sleeve at diametrically opposed points and thus connecting rod 25 is held for operation in the longitudinal plane of the can holders 30 and consequently the effort required for operating or oscillating the holders 30 depends upon the length of the connecting rod 25 between the sleeve 26 and the crank 20.

The connection of the connecting rod 25 is thus direct with respect to the holders so that the outer end of the connecting rod may be easily raised and lowered to rock the holders back and forth and thus provide the necessary stirring or mixing of the contents of cans mounted in the holder. It is preferable to dispose the axis of the rock shaft structure, including the shaft sections 27, normal to the longitudinal axis of the holders 30 and also equi-distantly spaced from the opposite ends and opposite diametrical points of the holder. The adjustment of the cans in the holder, particularly with short cans, will sufficiently approximate the rocking or oscillating movement without material pounding or offsetting of the weight of the cans so that the machine in operation will run relatively smoothly and the contents of the cans will be properly displaced from end to end in the cans and without the bodily displacement and impact which is occasioned by a bodily shifting of the holder in an endwise direction.

In operation, a relatively small motor may be employed to rotate the drive wheel 21. The drive wheel 21 turns the crank shaft 19 and the throw of the crank 20 not only raises and lowers the outer end of the connecting rod 25 but also shifts the same in the direction of its length.

The connecting rod 25 is relatively rigid throughout its length so that as it rises and falls it reciprocates the shaft sections 27 and their can holders 30 and the sliding connection of the rod 25 with the sleeve 26 permits the rod to at all times remain in the plane of the longitudinal axes of the shaft sections 27 and the holders 30. Owing to the length of the connecting rod 27 but little effort is required in not only rocking the holders 30 on their transverse supporting axis but in absorbing or overcoming shock or pounding incident to the displacement of the contents in the cans.

The device is of extremely simple construction and incident to the direct rigid crank connection reduces vibration and pounding to a minimum.

Referring now to the modification shown in Figures 5, 6, and 7, a pair of standards 35 is mounted on a suitable support 36 and at their upper ends provide bearings for trunnions 37

which project from the opposite sides of a can holder 38. The can holder 38 is of the general construction shown in Figures 1 to 4 and the trunnions 37 are disposed on a common axis which intersects the intermediate portion of the holder 38 and the longitudinal axis thereof. One end of the holder 38 is provided with an axially disposed sleeve 39 in which is secured rigidly one end of a connecting rod 40 by means of a key or pin 41 so that the connecting rod 40 is coaxial with the holder 38 and may be raised and lowered at its opposite end to rock the holder 38 on the axis of the trunnions 37. The opposite end of the connecting rod 40 is provided with a coupling or socket head 42 for receiving therein the ball head 43 of an arm 44 which carries an eccentric strap 45 on its lower end encircling an eccentric disc 46 mounted on the crank 47 of a drive shaft 48. The drive shaft 48 is mounted in a casing 49 which may contain a body of oil in its lower end portion within which the eccentric 46 with its adjacent parts may operate, and the opposite ends of the crank shaft 48 have bearing through the opposite sides of the casing 49 and at one end extends beyond the casing and is provided with a drive pulley or wheel 50.

The wheel 50 may be operated by a belt 51, as shown in Figure 5, driven from any suitable source of power. The casing 49 is provided in one wall with a vertical slot 52 through which the connecting rod 40 extends and in which the rod has a free vertical swinging movement. The arm 44 is of sufficient length to lie substantially in the horizontal plane of the trunnions or axis of the can holder 38 when the eccentric 46 is in a substantially intermediate position, as shown in Figure 6. Thus, the rocking of the holder 38 is substantially equal in opposite directions out of its normal horizontal position.

In this case, like in the first form, the rigid connecting rod 40 swings as a unit with the can holder 38 and is proportioned as to length so as to reduce the work required for rocking the holder 38 and also for absorbing or taking up the thrust or pounding action of the material within the cans during operation of the machine. Thus, a relatively light motor may be used for operating the drive wheel 50. When the drive wheel 50 is turned it rotates the crank shaft 48 and consequently turns the disc 46 with the result that the arm 44 is raised and lowered and at the same time swung within the limits of the eccentric disc 46 in its coupling with the outer end of the connecting rod 40. The arm 44 thus raises and lowers the outer end of the connecting rod 40 and the latter is coincident with the radius of the axis or trunnions 37. The connecting rod 25 in the other form of the invention is also coincident with the radius of the axis of the shaft sections 27 and can holders 30.

What is claimed is:—

1. A paint mixing device comprising a housing, a shaft journaled in opposed walls of said housing and extending outwardly of said walls, said shaft having a transversely disposed opening between said walls, a second shaft journaled in said walls, said second shaft being disposed in spaced parallel relation to said first shaft, a rod eccentrically carried by said second shaft, said rod loosely extending through said opening in said first shaft, driving means for said second shaft, and can supporting means carried by the opposite ends of said first shaft.

2. A paint mixing device comprising a housing,

a shaft journaled in opposed walls of said housing and extending outwardly of said walls, said shaft having a transversely disposed opening between said walls, a second shaft journaled in said walls, said second shaft being disposed in spaced parallel relation to said first shaft, a rod eccentrically carried by said second shaft, said rod

loosely extending through said opening in said first shaft, driving means for said second shaft, can supporting means carried by the opposite ends of said first shaft, and adjustable clamping means carried by said supporting means.

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