

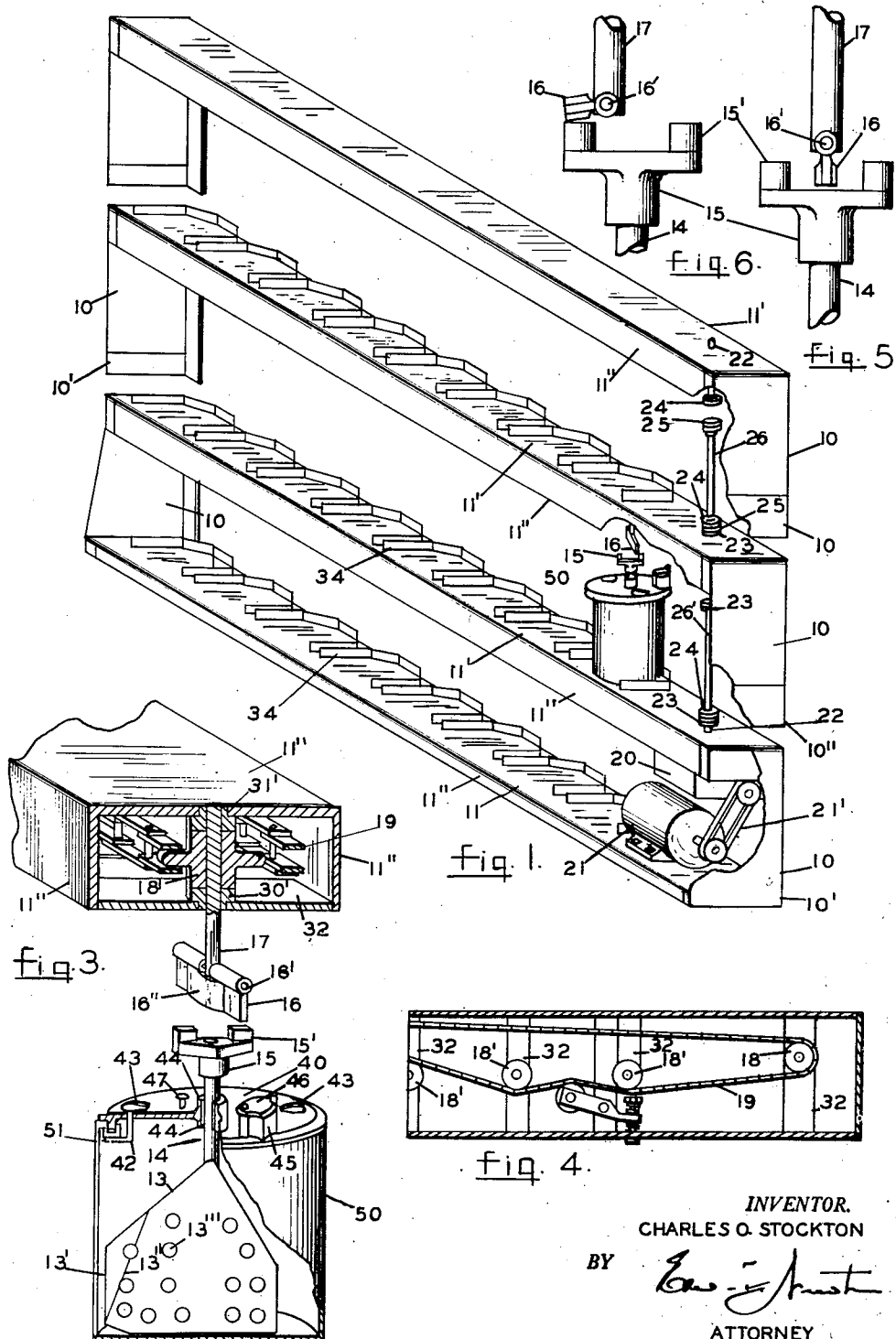
Aug. 13, 1957

C. O. STOCKTON
PAINT MIXING APPARATUS

2,802,649

Filed March 8, 1954

2 Sheets-Sheet 1



INVENTOR.
CHARLES O. STOCKTON

BY

Charles O. Stockton

ATTORNEY

Aug. 13, 1957

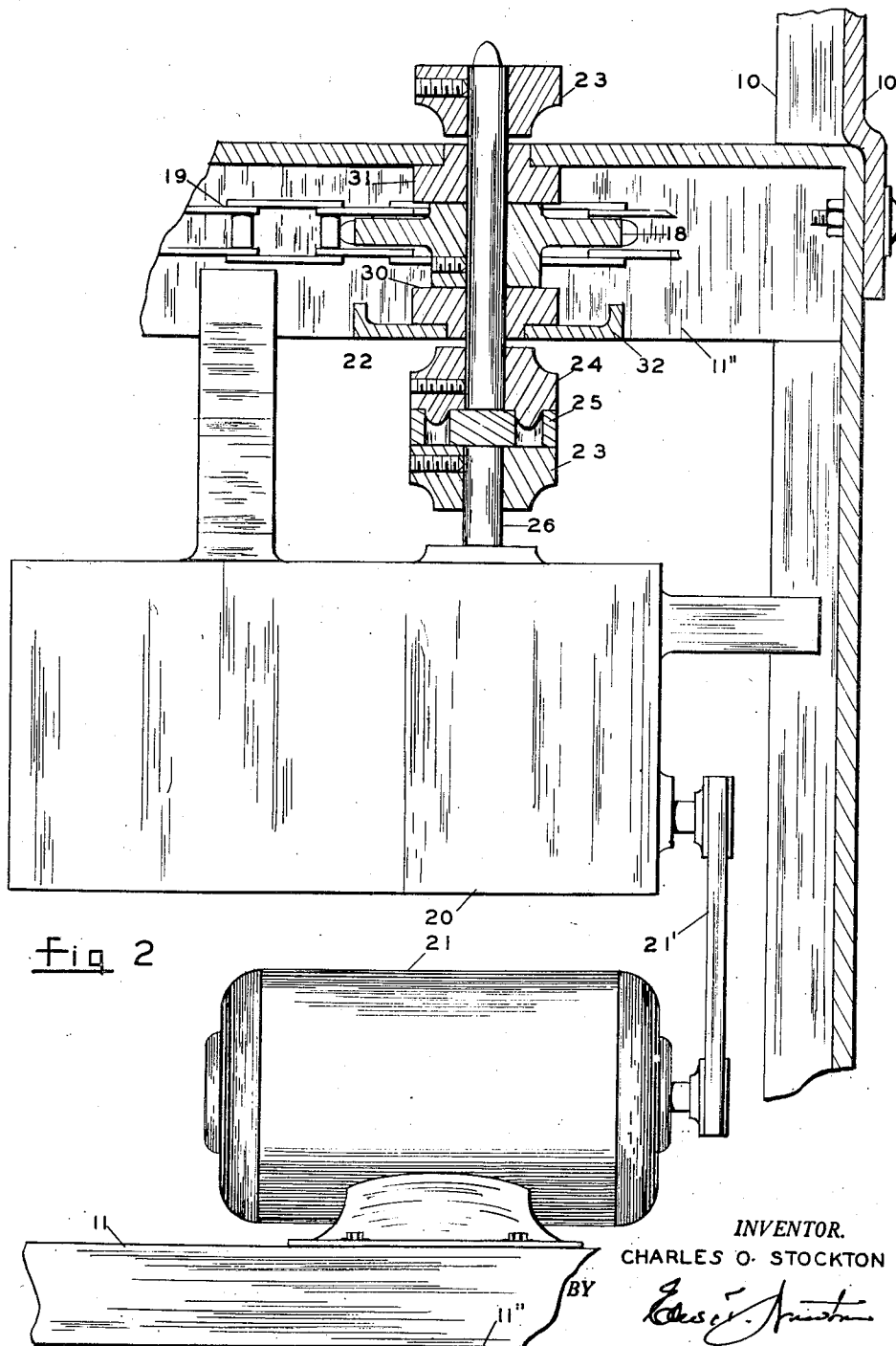
C. O. STOCKTON

2,802,649

PAINT MIXING APPARATUS

Filed March 8, 1954

2 Sheets-Sheet 2



1

2,802,649

PAINT MIXING APPARATUS

Charles O. Stockton, College Park, Ga., assignor to Zacc-Lac Paint & Lacquer Corp., Atlanta, Ga., a corporation of Georgia

Application March 8, 1954, Serial No. 414,806

6 Claims. (Cl. 259—67)

My invention relates to paint mixers to keep a can of paint in mixed condition until use, and to a device which will maintain a plurality of cans of paint of various colors in mixed condition in a paint shop, in order that a selection may be made and the color selected will be in condition for use without delay.

It has been the practice in paint shops to mix the colors likely to be used during the day in the early part of the day. If, however, one of the colors is not required until late in the day, it will be necessary to perform the mixing operation anew as the paint will not remain properly mixed over more than an hour or two.

One object of my invention is to provide a mixing device for an individual can of paint or the like that may be applied to the can to replace the conventional closure, and which, in conjunction with a drive means, will maintain the paint in the can in thoroughly mixed condition, and from which paint may be dispensed.

A further object of my invention is to provide a rack which supports driving means for individual mixers, mounted on a can of paint or the like.

A further object of my invention is to provide a new power take-off connection by which the driven means may be removed and returned to driven engagement without stopping or otherwise disturbing the driving means.

Other and further objects and advantages of my invention will be apparent from the following description taken in conjunction with the accompanying drawings in which like characters of reference designate corresponding parts throughout the several views, and in which:

Fig. 1 is an exploded isometric view of the device of my invention.

Fig. 2 is a fragmentary view partially in section of the driving means for the paint mixers of my invention.

Fig. 3 is an enlarged exploded fragmentary isometric view partly in section of one can of paint and the mixing means associated therewith.

Fig. 4 shows diagrammatically one means of reeving the drive chain.

Figs 5 and 6 illustrate the operation of the quick release driving coupling.

Referring now to the drawings in detail, it will be seen from Fig. 1 that the paint mixing machine of my invention provides a shelf 11 (stiffened by depending aprons 11') on which a plurality of cans of paint, to be mixed, may be placed. Guides 34 are positioned on the shelf to accurately locate each can of paint under a paint mixer driving connection which depends from the lower side of an upper shelf 11'.

At one end of shelf 11 an electric motor 21 is mounted. Motor 21 drives a reduction gear means 20 through a V-belt, or other means, 21'.

Mounted at the top of reduction gear means 20 there is shown in Fig. 2 a half of a demountable coupling means 23 mounted on a vertical shaft 26.

At each end of shelf 11 is a vertical support element 10 carrying an offset portion 10' to provide for connection, by, for instance, bolts, to the end of shelf 11.

2

At the upper end of vertical support elements 10 is secured, as by welding, a shelf element 11' stiffened by depending apron elements 11'.

Secured across the bottom of depending aprons 11' of shelf 11' in a position above the half coupling element 23, is a channel element 32 which is secured, preferably by welding to the bottom edges of aprons 11'.

Mounted on the upper side of channel 32 and on the lower side of shelf 11' are aligned bearing elements 30 and 31 respectively, in alignment with shaft 26. Mounted for rotation in bearings 30, 31 is stub shaft 22 which carries a coupling half 24 for driving cooperation through fiber disc element 25, with coupling half 23.

The coupling 23, 24, 25 consists of the two coupling halves 23, 24 which are in fact identical, each comprising a disc portion and two diametrically placed lugs, and fiber element 25 which has four holes spaced at 90° from each other about the edge of the disc to receive the lugs of the coupling halves. Other couplings may, of course, be substituted for the specific coupling described, if desired.

Mounted on stub shaft 22 between bearings 30 and 31 is a sprocket 18. Sprocket 18 is secured to the shaft 22 to rotate therewith and to locate the shaft 22 in vertically adjusted position.

A further coupling half 23 may be mounted on the upper end of stub shaft 22 above shelf 11' for purposes to be explained below.

At spaced intervals along the under side of shelf 11' are channels 32. The spacing of these channels is such that each is located immediately over the center of a can of paint when it is placed on the shelf and centered by guides 34.

Supported on channels 32 and on the shelf 11' are aligned bearing 30' and 31'. A shaft 17 is rotatably mounted in bearings 30', 31'. Shaft 17 is supported in its vertical adjusted position by sprocket 18' which is secured to the shaft.

A chain 19, similar to a bicycle chain, drivingly connects sprocket 18 mounted on shaft 22 with each sprocket 18' mounted on its shaft 17. This chain may be reeved as shown in Fig. 4 or in any other suitable manner.

At the lower end of shaft 17 is the driving portion of a power take-off connection 16 which is supported at a height above shelf 11 to engage the driven portion 15 of the power take-off means which is mounted, in the exemplification described herein, on a paint mixing closure for a can of paint.

The power take-off element, seen specifically in Figs. 5 and 6, comprises a leaf element 16. Leaf 16 is loosely hinged to shaft 17 by pin 16'. The central portion of leaf 16 is preferably, but not necessarily, an enlargement 16'' which adds weight to the leaf 16 to assure its swinging downwardly to the vertical position, seen in Fig. 5, after it has been raised, as seen in Fig. 6 by passage of element 15 thereunder, and also to aid in centering leaf 16 with coacting lugs 15' of the power take-off connection 15 mounted on a container.

Power take-off elements 15, 15' which coact with element 16 to transmit rotation from shaft 17 to shaft 14 comprises two lugs 15' mounted on support 15 which is keyed or otherwise secured to shaft 14. The faces of lugs 15' are preferably radial so that they present flat surfaces for engagement with corresponding radial surfaces at the ends of leaf 16.

It will be appreciated that when the shaft 14 is substantially in alignment with shaft 17 the leaf 16 mounted on rotating shaft 17 will depend between the lugs 15', as seen in Fig. 5, and upon rotation will engage lugs 15' to rotate shaft 14 to which lugs 15' are secured. If, however, the shaft 14 and its power take-off means 15, 15' is moved horizontally, the leaf 16 will either slide

3

endwise out from between the lugs 15' if the motion is parallel to leaf 16, or leaf 16 will swing upwardly about pivot 16', as seen in Fig. 6, under the unbalanced pressures of lugs 15' against opposite sides of leaf 16 if the motion is at an angle to leaf 16. So it is to be understood that the coupling elements 15, 15' can be removed from engagement with coupling element 16 merely by pulling the container carrying shaft 14 horizontally away from position under shaft 17 with its coupling element 16. To re-engage the coupling, it is only necessary to push the device into alignment again.

Coupling elements 15, 15' are shown in the drawings in Fig. 3, as mounted on a shaft 14 of a paint mixing device. This paint mixing device comprises a closure indicated generally by numeral 40. Closure 40 carries about its lower periphery a flange 41 of such diameter and shape as to fit snugly into a peripheral groove 51 conventionally provided about the top of paint cans.

At each side of closure 40 is provided a hook element 42 to secure the closure 40 to the can 50 by engagement under the bottom of element 51 within the can. Cam latches 43 on the upper ends of hooks 42 bear against the top surface of closure 40 and serve as handles by which the hooks 42 may be rotated into or out of position below element 51 of the can, and by which hooks 42 may be clamped against element 51 of the can 50.

Shaft 14 passes through a boss 44 in the center of closure 40. An appropriate wearing bushing 44' may be provided. Shaft 14 is not provided with stops which support the shaft in relation with boss 44.

Mounted below closure 40 on shaft 14 is a paddle or dasher 14. Dasher 13 is asymmetrically mounted on shaft 14 so that one vertical edge 13', when the closure is in position on a can, will always pass close to the side of the paint can as shaft 14 rotates. The opposite vertical edge of the dasher is spaced from vertical edge 13' a distance a little less than the diameter of the mouth of the can. The edge 13' of the dasher is bent slightly forward along a line 13'' to impart a swirling motion to the paint as it is being mixed. Numerous holes 13''' are provided to aid the mixing action of the dasher.

As stated above, the shaft 14 is not provided with a stop to support it vertically. Shaft 14 therefore will slide downwardly through bushing 44' until the bottom edge of dasher 13 rides on the bottom of the paint can 50.

At one side of closure 40 is an upstanding pour spout 45 provided with a horizontally swinging closure 46. Diametrically opposite to the spout is a capped vent 47.

The exemplification of my invention described above and illustrated in the drawings is based on a machine in which gallon cans of paint are to be mixed. It will be obvious that the device can be made of a size to accommodate other sizes of cans and it will be obvious that provision can be for a narrower guide 46 and a differently proportioned closure and dasher to accommodate cans of smaller than gallon capacity on the machine described.

It was pointed out above that a further coupling half 23 may be mounted above shelf 11'. This is desirable when it is desired to stir a greater number of cans of paint than can be accommodated on shelf 11. In Fig. 1, it will be noted that elements 10, 10' are provided at each end of a plurality of shelf elements 11'. Each shelf 11' has mounted thereunder channels 32 carrying a shaft 22 with its sprocket 18 and couplings 23, 24 or shafts 17 each with its sprocket 18' driven by a chain 19 from sprocket 18. It will be seen therefore that each unit comprising shelf 11' with its enclosed mechanism and supports 10, 10' is identical to the other units and can be substituted therefor, or a plurality of units may be placed in stacked relationship. To connect each additive unit to the driving motor as it is added to the assemblage as suggested in Fig. 1, a length of shaft 26' is provided with a coupling half 23 at the top and 24 at the bottom. It is, therefore, not necessary to provide but the one motor 20 for a plurality of shelves.

4

If desired, however, a unit 11', 10, 10' similar to but to accommodate smaller cans, may be provided, which will mount on the assemblage of one or more of the shelf units shown.

It will be obvious to those skilled in the art that various modifications, changes and adaptations can be made in the devices described above without departing from the scope of my invention as defined in the appended claims.

I claim:

1. A mixing machine for stirring the contents of a plurality of containers comprising a plurality of spaced horizontally disposed shelves, supporting elements depending from all of said shelves, a bottommost shelf disposed beneath said other shelves, means for removably coupling the free ends of said supporting elements on one of said horizontally disposed shelves to the next lower of said shelves, a drive means mounted on one of said shelves, tandem arranged couplings extending between said shelves for simultaneous driving by said drive means, guide means on each of said shelves below the topmost shelf for selectively receiving a plurality of containers and to accurately locate said containers in juxtaposition along each of said shelves below the topmost of said shelves, vertical shafts depending from said shelves, each of said shafts being so located as to be centered above one of said guides, coupling means mounted on the lower end of each of said shafts, and means to simultaneously rotate all of said shafts carried by one shelf from the coupling carried by that shelf.

2. The structure defined in claim 1 wherein each of said tandem arranged couplings includes a pair of coupling halves, and fiber discs between each pair of said coupling halves.

3. The structure defined in claim 1 wherein an asymmetrical dasher is rotatably driven from each coupling means.

4. A mixing machine for stirring the contents of a plurality of containers comprising a plurality of spaced horizontally disposed shelves, aprons depending from the longitudinal edges of said shelves, brackets supported at spaced intervals between the aprons of each of said shelves, supporting elements depending from the ends of said shelves, a bottommost shelf disposed beneath said other shelves, means for removably coupling the free ends of said supporting elements of one of said horizontally disposed shelves to the next lower of said shelves, a drive means mounted on one of said shelves, sprockets respectively carried by one of said brackets on each of said shelves in axial vertical alignment with themselves, decoupleable couplings connecting each of said sprockets and joining said sprockets to said drive means for simultaneous driving by said drive means, guide means on each of said shelves below the topmost shelf for selectively receiving a plurality of containers and to accurately locate said containers in juxtaposition along each of said shelves below the topmost of said shelves, vertical shafts depending from said brackets, each of said shafts being so located as to be centered above one of said guides, coupling means mounted on the lower end of each of said dependent shafts, and means to simultaneously rotate all of said shafts carried by brackets connected to one shelf from the sprocket carried by the bracket on that shelf.

5. A mixing machine for stirring the contents of a plurality of containers comprising a plurality of spaced horizontally disposed shelves, supporting elements depending from all of said shelves, a bottommost shelf disposed beneath said other shelves, means for removably coupling the free ends of said supporting elements on one of said horizontally disposed shelves to the next lower of said shelves, drive means mounted on one of said shelves, guide means on each of said shelves below the topmost shelf for selectively receiving a plurality of containers and to accurately locate said containers in juxtaposition along each of said shelves below the topmost of said shelves, vertical shafts depending from said shelves, each of said shafts being so located as to be centered above one of said guides, coupling means mounted on the lower end of each of said dependent shafts, and means to simultaneously rotate all of said shafts carried by brackets connected to one shelf from the sprocket carried by the bracket on that shelf.

5

position along each of said shelves below the topmost of said shelves, vertical shafts depending from said shelves, each of said shafts being so located as to be centered above one of said guides, coupling means mounted on the lower end of each of said shafts, and means for driving all of said shafts from said drive means. 5

6. The structure defined in claim 5 wherein said last mentioned means includes tandem arranged couplings extending between said shelves and sprockets connected to said couplings, and chains connected to each sprocket and respectively extending to each shaft on one shelf so that one chain drives all shafts on that shelf. 10

6

References Cited in the file of this patent

UNITED STATES PATENTS

1,271,581	Keith	July 9, 1918
1,735,143	Supervielle	Nov. 12, 1929
1,841,434	Gibson	Jan. 19, 1932
1,842,938	Hancock	Jan. 26, 1932
2,428,492	Haller	Oct. 7, 1947
2,603,461	Marienthal	July 15, 1952