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PAINT MIXING MACHINE

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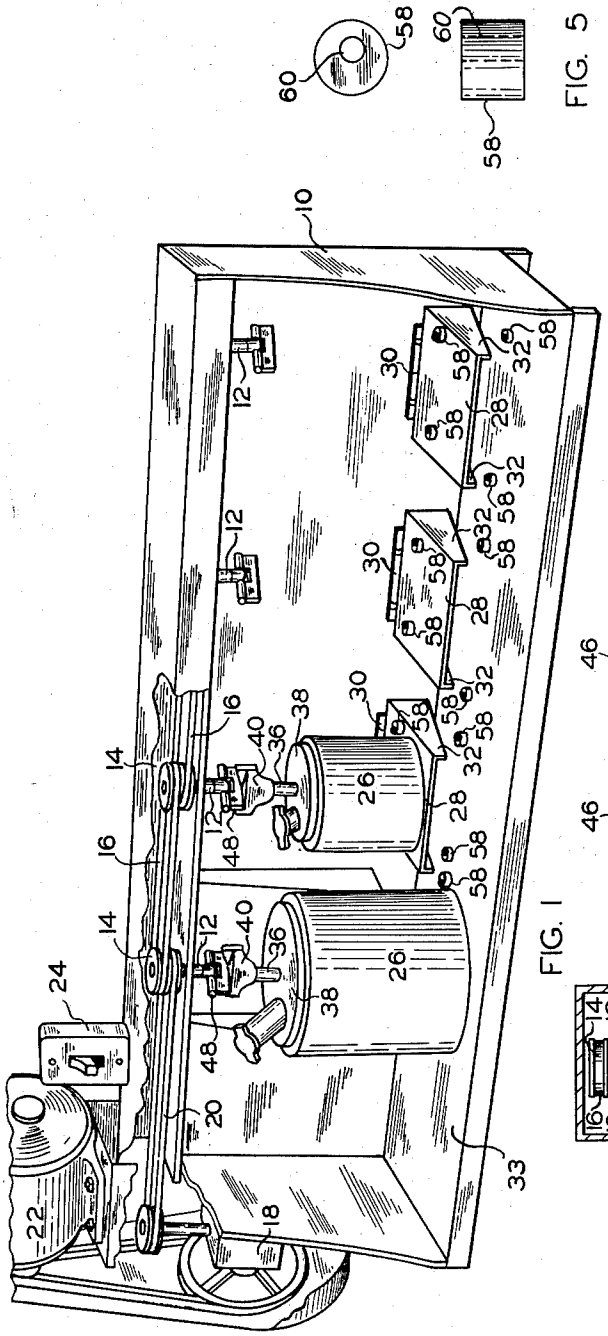


FIG. 1



FIG. 5

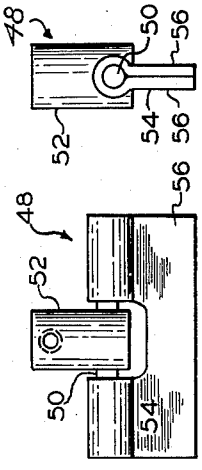


FIG. 4

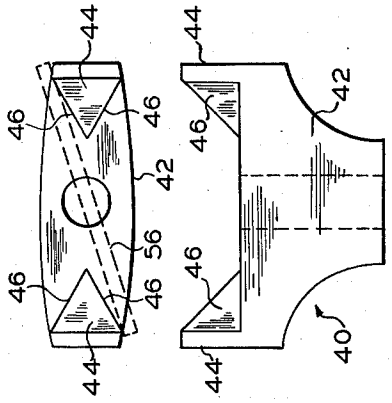


FIG. 3

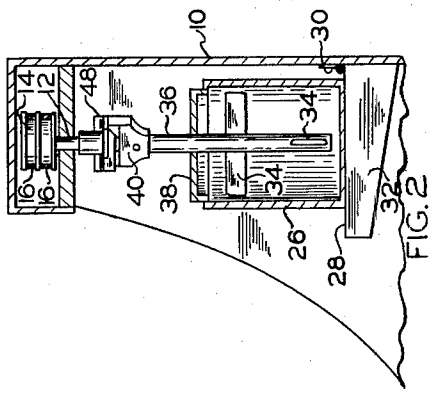


FIG. 2

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# PAINT MIXING MACHINE

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1 Claim. (Cl. 259—67)

The invention relates to paint mixing and blending devices and particularly pertains to a multi-station power driven blending cabinet.

Due to the wide variation of paint colors now popular, especially in the automotive field, it has become impractical to stock all the current shades of paint, consequently the use of mixing or blending sets has become widespread. In the use of mixing sets a few base colors are stocked along with a limited number of pigments, which when added to the base colors according to specified ratio will produce any desired shade. Thus, by creating the desired shade of paint by mixing small amounts of pigments with a base color inventories may be reduced yet thousands of paint shades are available. This system of custom mixing is especially advantageous in automobile repair shops where weathering and the many hues of the modern automobile require a different color for practically each job.

Inasmuch as paints of the above type require complete mixing, paint stores, large automobile repair shops and other installations preparing large quantities of paint must use mixing machines capable of handling several containers simultaneously and it is an object of the invention to provide a multi-station power driven mixing cabinet capable of accommodating several sizes of paint containers.

Another object of the invention is to provide a multi-stationed power driven mixing device capable of simultaneously mixing several paint containers whereby individual mixing containers may be engaged or disengaged from the power drive during the operation thereof.

Yet a further object of the invention is to provide a multi-stationed power driven mixing device having adjustable means for aligning the mixing containers with the drive means, which may be economically manufactured and is concise in size.

Also included in the objects of the invention is to produce a flexible clutch for use with paint mixing machines wherein engagement may be made with a rotating power drive by a mixing paddle clutch upon translating the paddle clutch transversely to the axis of rotation of the power drive.

These and other objects of the invention will be fully apparent upon reference to the following description and accompanying drawings wherein:

Fig. 1 is a perspective view of a paint mixing cabinet employing the embodiments of the invention showing two different sized mixing containers in mixing position,

Fig. 2 is a cross-sectional elevation of the mixing cabinet illustrating the relationship of various components,

Fig. 3 are plan and elevational views of the clutch member of the mixing paddle,

Fig. 4 are front and end views of the clutch member of the power drive, and

Fig. 5 are plan and elevational views of the eccentric aligning stop used to position the mixing containers within the cabinet.



An embodiment of a mixing cabinet utilizing the concepts of the invention is shown in Fig. 1 and consists of an open sided cabinet **10** formed of sheet material, a series of spaced, parallel power driven shafts **12** are rotatably journaled within suitable bearing housings in the upper portion of cabinet **10** and extend into the interior thereof. The shafts **12** are provided with pulleys or sheaves **14** at the upper end which are fixed to the shafts and drivingly interconnected by belts **16**. A speed reduction gear box **18** is mounted on one end of cabinet **10** and the power output is transmitted to shafts **12** by belt **20**. Gear box **18** is driven by an electric motor **22** controlled by switch **24** through a conventional belt and pulley arrangement.

The paint containers **26** are supported within the cabinet **10** in one of two different manners as will be apparent. To support smaller size containers a plurality of shelves **28** are hinged at **30** and provided with depending edges **32** which contact the side of cabinet **10** to maintain the shelf in a horizontal plane. Thus, quart and pint size paint containers may be placed on shelves **28** while the larger gallon sizes are supported directly on the floor **33** of cabinet **10**. As shown in Fig. 1, access is provided for the larger containers **26** by pivoting the shelf **28** about hinge **30** upward out of the way of the container.

Fig. 2 best illustrates the paint mixing paddle and associated apparatus. The paddle consists of mixing blades **34** affixed to a shaft **36** journaled in a cover **38** enclosing the top of container **26** and affixed thereto. The blades **34** are submerged in the paint to be mixed and upon rotation of shaft **36** efficient mixing is achieved. To such end an adapter or yoke clutch member **40** is attached to the shaft **36**.

The clutch member **40** consists of an elongated body portion **42** from which are formed opposing ears **44**. The ears **44** are machined or cast with converging surfaces **46** which engage the torque transmitting elements of the power drive means as will be apparent.

The power driven shafts **12** are provided with a "flexible" drive member **48**, Fig. 4, which is attached to the shafts for rotation therewith. A pivot pin **50** is loosely journaled within the body **52** of drive member **48** and a yoke engaging drive member **54** is formed about pin **50** and will rotate with pin **50**. Member **54** may be made of heavy sheet metal and is intimately formed about pin **50** and includes planar portions **56** which, due to their weight, will assume the position shown in the full lines of Fig. 4. The member **54** is capable of being rotated to the dotted line positions of Fig. 4 which is accomplished by pin **50** rotating the body **52**.

In use, the power drive motor **22** will be energized and the shafts **12** and drive members **48** will be rotating. The planar portions **56** will be hanging vertically, as in Figs. 1 and 4. The paint container **26**, to be mixed, will be preassembled with cover **38** and blades **34** and the yoke member **40** is engaged with the yoke drive member **54** and planar portions **56** by sliding the container under the power drive member **54** in a direction transverse to the axis of rotation of shaft **12**. This type of clutching action is possible due to the construction of the drive member **48**. As the yoke clutch member **40** is moved into engagement with the yoke drive member **54** the drive member **54** may pivot upward out of the way of ears **44** upon contact thereof and upon alignment of shafts **12** and **36** the drive member **54** and portions **56** will resume a vertical position. After drive member **54** resumes a vertical position the planar portions **56** will engage the surfaces **46** on ears **44** as shown by the dotted lines of the plan view of Fig. 3 and transmit torque from shaft **12** to shaft **36** and mixer blades **34**.

It must be remembered that during the engagement of yoke clutch member **40** with drive member **48** that member **48** is continuously rotating at a relatively slow speed,

approximately 100 r.p.m., and there will be two periods during each revolution of drive member **48**, after engagement with yoke **40**, that the planar portions may resort to the vertical position, e.g., when the longitudinal axis of the yoke engaging drive member **54** is substantially at right angles to the longitudinal axis of yoke **40**. Thus, there will be a smooth and positive driving connection made between the shafts **12** and **36** upon merely inserting the container into one of the mixing stations of the cabinet **10**.

To aid in aligning shafts **12** and **36** a pair of aligning and container holding stops **58** are used at each station for each of the different sized containers accommodated. The stops **58** are located on the surface supporting the containers **26**, e.g., on the base of cabinet **10** or on the shelves **28** and consist of a cylindrical washer type body through which an eccentric hole **60** is drilled. Stops **58** are attached to the cabinet or shelves by a screw or bolt extending through hole **60** and are spaced apart a distance a little less than the container diameter and as the container is inserted in the cabinet until contact is made with the periphery of the two stops **58** limited adjustment of alignment may be achieved due to the eccentric position of hole **60**. Thus, initially, when shafts **12** and **36** are coaxial the stops would be rotated until contact with the container **26** is made and then affixed in position assuring that subsequent containers of the same size placed within the station will be in proper alignment. It may also be pointed out that upon the container rotating, one of the stops **58** will function as a fulcrum to force the container into engagement with the other stop thereby resisting the container rotation. It will therefore be appreciated that the relationship of the stops **58** to the container is such as to resist horizontal movement of the container in three perpendicular directions, namely, to the left or right or further into the cabinet as viewed in Fig. 1.

It will, thus, be understood that the invention produces a mixing or blending machine of simplified construction which will accommodate a plurality of different sized containers, the containers may be coupled to or removed from the machine as desired without interrupting the power drive and mixing action of other containers within the machine. The pivoted yoke engaging drive member **54** insures a smooth engagement of the mixing container with the power means and the alignment of the container is quickly achieved by means of the adjustable stops **58**.

Modifications to the illustrated embodiment of the invention, such as mounting several cabinets one above the other using the same power source, may be apparent to those skilled in the art without departing from the spirit and scope of the invention and it is intended that the invention be limited only by the substance defined in the following claim.

I claim:

In a mixing machine for use with individual mixing apparatus and containers, said apparatus including containers having rotatably supported mixing blades therein drivenly associated with a yoke clutch member, a cabinet having an accessible opening, drive shafts journaled in the upper portion of said cabinet, power means drivingly connected to said drive shafts, a drive member affixed to each of said shafts adapted to drivingly engage the yoke clutch member of said mixing apparatus upon insertion of said container in a predetermined position within said cabinet, said drive member including a pivot pin journaled in a body portion and a yoke clutch engaging member fixed to said pivot pin adapted to be temporarily displaced upon interference with said yoke clutch member of said mixing apparatus during insertion of said container within said cabinet, shelves mounted in said cabinet below said drive shafts for support of the containers, said shelves being hinged whereby they may be rotated to a non-use position to accommodate containers and a pair of stop means comprising cylindrical members having eccentric axial bores defined therein affixed to said cabinet below each of said drive shafts and each of said shelves by fastening means extending through said bore, said stops being located on said shelves and cabinet at equal lateral distances on opposite sides of the axis of said drive shafts and behind said axis with respect to said accessible cabinet opening at a position adapted to engage each of said containers for axial alignment with said drive shaft and spaced apart a distance slightly less than the diameter of the container to be accommodated whereby container movement is resisted in three perpendicular horizontal directions and rotation of said container is also resisted.

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