Aug. 11, 1959 J. A. KILBANE, JR., ET AL 2,898,711

TUMBLER

Filed Aug. 14, 1957

FIG. 1

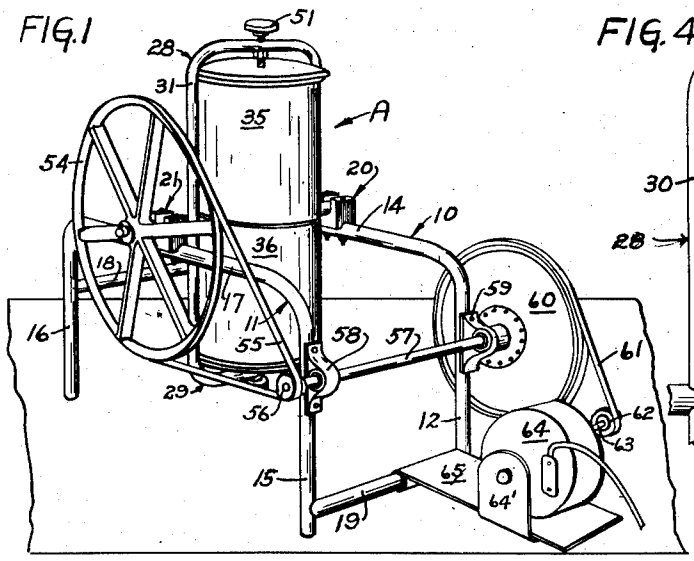


FIG. 4

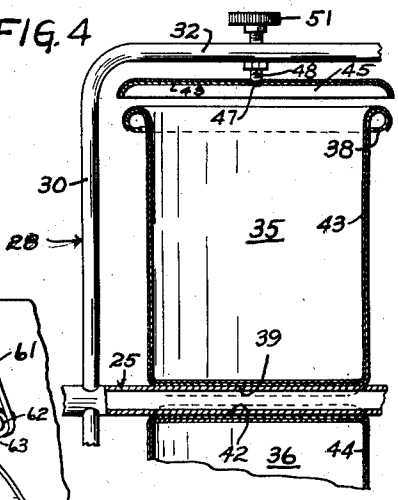


FIG. 2

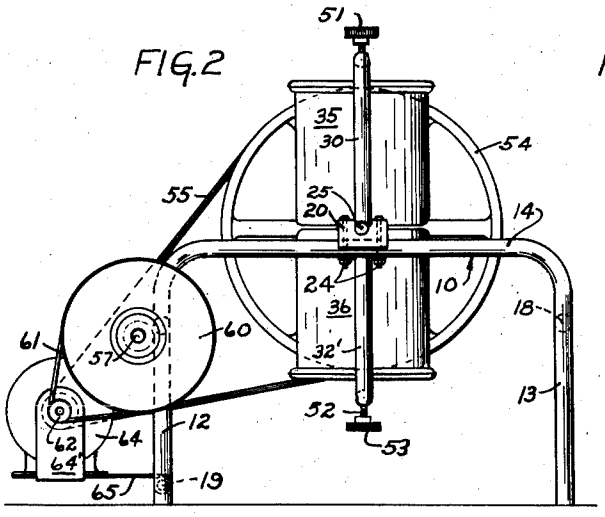


FIG. 3

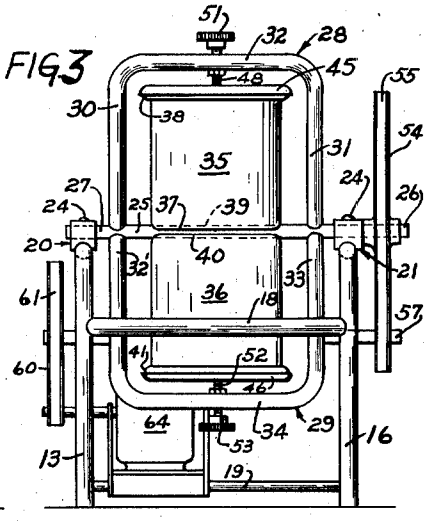


FIG. 5

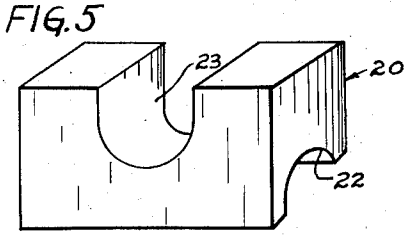
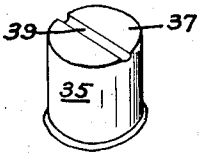


FIG. 6



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TUMBLER

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3 Claims. (Cl. 51—164)

Our invention relates to an improvement in a tumbler and more particularly to a tumbler which is portable in nature and used principally for small articles such as gem stones, small metal parts, etc.

It is an object of our invention to provide a tumbling device which mounts tumbling containers in end to end opposed relationship and which rotates the containers in an end over end movement on the longitudinal axis of the containers moving in a vertical plane. It is a further object to provide a tumbling device with which the containers for the articles to be tumbled and the liquid and grit material fold in said material from the sides and ends of the containers to give more effective and faster tumbling.

It is also an object to provide a tumbler with which the containers are simply but effectively mounted and the speed of rotation of which may be easily changed to accommodate different materials.

It is still a further object to provide a tumbling device having new and novel means for mounting the opposed containers and new and novel means for releasing the containers from the mounting means. It is an additional object to provide a tumbling machine having a new and novel container construction.

We shall not here attempt to set forth and indicate all of the various objects and advantages incident to our invention, but other objects and advantages will be referred to in or else will become apparent from that which follows.

The invention will appear more clearly from the following description when taken in connection with the accompanying drawings, showing by way of example a preferred embodiment of the inventive idea wherein like numerals refer to like parts throughout.

In the drawings forming part of this application:

Figure 1 is a perspective view of our tumbler.

Figure 2 is a longitudinal side view of the tumbler.

Figure 3 is an end view thereof.

Figure 4 is a longitudinal sectional view through the tumbling containers and the supports therefor, a portion of one of the tumblers and support therefore being broken away.

Figure 5 is a perspective view of one of the bearings on which the tumbler containers rotate.

Figure 6 is a perspective view of one of the containers.

Referring to the drawings in detail our tumbler A includes the identical side supports **10** and **11**, with the support **10** composed of the substantially vertical leg portions **12** and **13** connected by the horizontal support **14**. The support **11** is composed of the substantially vertical leg portions **15** and **16** connected by the horizontal support **17**. The supports **10** and **11** are braced laterally by means of the cross brace **18** and the cross brace **19**. Secured to the horizontal supports **14** and **17** substantially centrally thereof are the bearing blocks **20** and **21** respectively. The blocks **20** and **21** are identical, and for the present purposes only one need be described. The block **20** is substantially rectangular in form and running longitudinally in the bottom thereof is the semicircular groove **22** which receives the horizontal support **14**. Formed in the upper edge of the block **20** is the transverse groove **23** in which is positioned the shaft hereinafter described. The blocks **20** and **21** are secured to the horizontal supports **14** and **17** respectively by the bolts **24**.

We further provide the shaft **25** the ends **26** and **27** of which are rotatably positioned in the grooves **23** of the blocks **20** and **21**. The shaft ends **26** and **27** form trunnions on which the cans hereinafter described rotate. Also provided are the substantially U-shaped mounts **28** and **29**. The mount **28** is composed of the leg portions **30** and **31** connected by the cross member **32**. The free ends of the leg portions **30** and **31** are connected to the shaft **25**. The mount **29** is composed of the leg portions **32'** and **33** connected by the cross bar **34** with the free ends of the leg portions **32'** and **33** connected to the shaft **25** in the same plane as the mount **28**. As a result of the above construction the mounts **28** and **29** together with shaft **25** are one integral unit rotatable on the bearing blocks **20** and **21**.

The numerals **35** and **36** designate a pair of containers or cans which are identical. The can **35** is cylindrical in shape with the bottom **37** and an open upper end formed with the peripheral bead **38**. The bottom **37** of the can **35** is formed with a groove **39** extending across a diameter thereof. The can **36** is also cylindrical in shape with the bottom **40** and an open upper end formed with the peripheral bead **41**. The bottom **40** of the can **36** is formed with a groove **42** extending across a diameter thereof. Further, the cans **35** and **36** are coated on the inside with a plastic water and oil resistant coating **43** and **44** respectively which extend out over the suface of the peripheral beads formed on the cans **35** and **36**. We further provide the circular top cover members **45** and **46** for the cans **35** and **36** respectively which are identical. The cover **45** is formed with an axially disposed small depression **47** which receives the end of the short rod **48** threadedly mounted on the cross member **32** of the mount **28**. The cover **45** is lined with a water and oil resistant plastic coating **49** which extends to the extreme outer edge thereof.

The lining of the can **35** extends over the bead **38** so that when the cover **45** is placed on the top open end of the can **35** there is plastic to plastic contact which completely and effectively seals the can. The same is true of the can **36**. Before placing the cover **45** on the can **35** the items to be tumbled are placed in the can together with a liquid and grit material where necessary. The cover is then placed in position and the can mounted within the mount **28** with the shaft support **25** positioned within the recess or groove **39**. The end of the threaded rod **48** is positioned in the depression **47** and the rod screwed down upon the cover **45** by means of the knob **51** thereby making a positive water and air tight seal of the cover with the can while at the same time securely mounting the can in operative position in the mount **28**.

The can **36** is identical to the complete can **35** with the threadedly mounted rod **52** engaging a depression formed in the top **46** identical to the depression **47** thereby maintaining the can **36** in place in the mount **29** by means of the knob **53** in the same manner as with the can **35**.

We further provide the large pulley **54** which is mounted on the end of the shaft **25** on which is mounted the drive belt **55**. The belt **55** is also mounted on the small drive pulley **56** which is secured to the outer end of the shaft **57** rotatably mounted in the bearing **58** mounted on the leg **15** and the bearing **59** mounted on the leg **12**. Mounted on the shaft **57** is the pulley **60** which is driven by the belt **61** placed around the pulley **62** mounted on the shaft **63** of the motor **64**. The motor **64**

is mounted on the standards 64' secured to the plate support 65 which is pivotally mounted on the cross brace 19 whereby the weight of the motor maintains constant tension on the belt 61.

When the motor is put in operation, the cans 35 and 36 are moved end over end about the axis of the shaft 25 by means of the mechanism heretofore set forth. With gem stones, water and the required grit, for example, within the sealed cans for tumbling it will become apparent on analysis that the mixture not only folds onto itself from one end of the can to the other as the can is moved, but because of such action and the fact of the cylindrical walls of the can, the material also folds in from the sides of the can upon itself. As a result more effective, complete and quicker tumbling is possible with our new and novel tumbler construction.

The invention is not to be understood as restricted to the details set forth, since these may be modified within the scope of the appended claims without departing from the spirit and scope of the invention.

Having thus described the invention, that which we claim as new and desire to secure by Letters Patent is:

1. In a tumbling device, a pair of containers each having a removable top and a closed bottom, a shaft, a pair of U-shaped support members each having a cross member and a pair of spaced leg portions extending therefrom in opposite directions, the outer free ends of said leg portions connected to said shaft, the bottom of each container having a groove formed completely thereacross and adapted to receive a portion of said shaft, clamping means connected to said cross members adapted to bear against the tops of said containers and maintain said tops on said containers and said containers on said shaft and within said U-shaped supports and means for rotating said shaft to move said containers in a circular path end over end on their longitudinal axes about said shaft.

2. In a tumbling device, a shaft, a pair of U-shaped members connected to and extending from said shaft in opposed relationship, a pair of cylindrical containers, each having a diametrically disposed groove in the bottom thereof in which said shaft is positioned to thereby position one of said containers in each of said U-shaped members with said shaft acting as a common support for both containers, means on said U-shaped members for holding said containers in pressing engagement with said shaft, and means for rotating said shaft to cause said containers to move in a circular path end over end about said shaft.

3. In a tumbling device, a pair of spaced vertical support members, a shaft rotatably mounted on said support members, a pair of U-shaped support members each having a cross member and spaced leg members extending therefrom, the ends of said leg members secured to said shaft to place said U-shaped support members in opposed relationship, a pair of cylindrical containers each formed with a rounded groove on the bottom thereof extending diametrically thereacross adapted to receive said shaft to position said containers thereon, respective screw means mounted to said cross members of said U-shaped support members adapted to bear against said containers and hold the same in pressing engagement with said shaft, and means for rotating said shaft to cause said containers to move in a circular path end over end about said shaft.

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