Dec. 10, 1968 N. GRUBELIC 3,415,495

APPARATUS FOR SHAKING PAINT CANS

Filed March 15, 1967 5 Sheets-Sheet 1

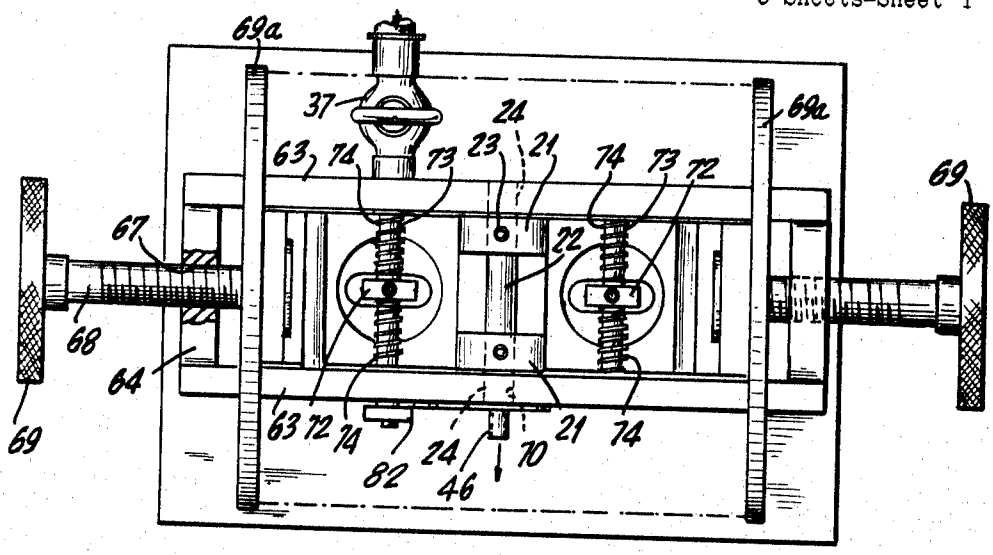


FIG. 1

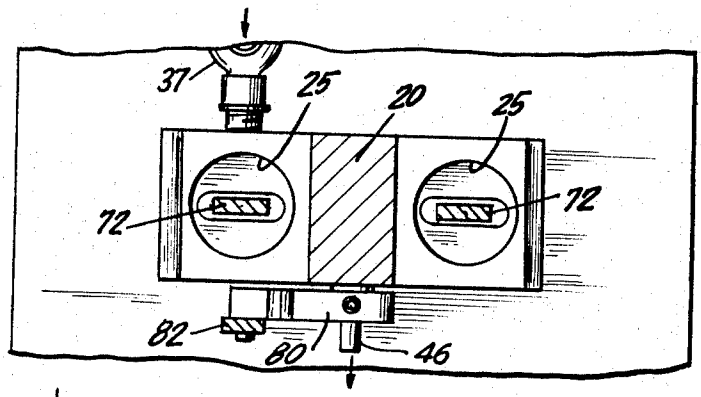


FIG. 5

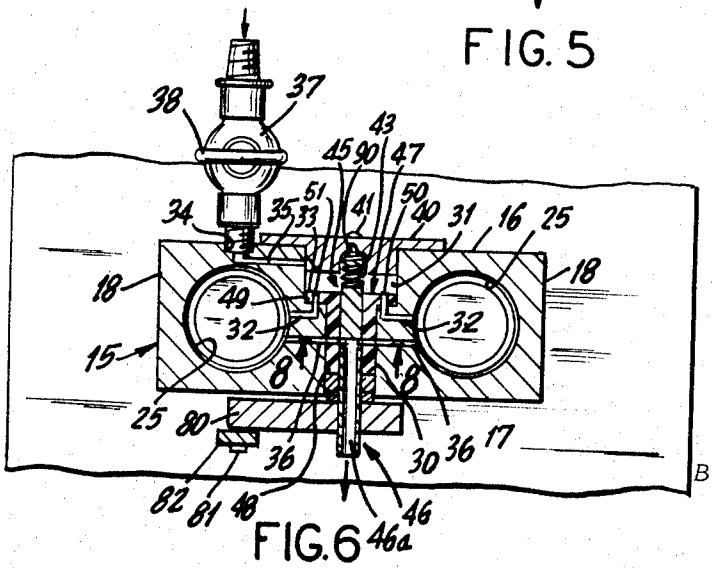


FIG. 6

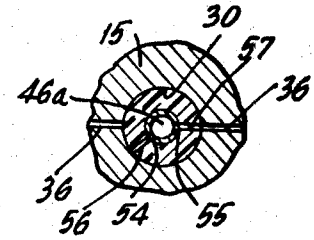


FIG. 8

INVENTOR.
NICHOLAS GRUBELIC

BY

J. B. Felshin
ATTORNEY

Dec. 10, 1968 N. GRUBELIC 3,415,495

APPARATUS FOR SHAKING PAINT CANS

Filed March 15, 1967 5 Sheets-Sheet 2

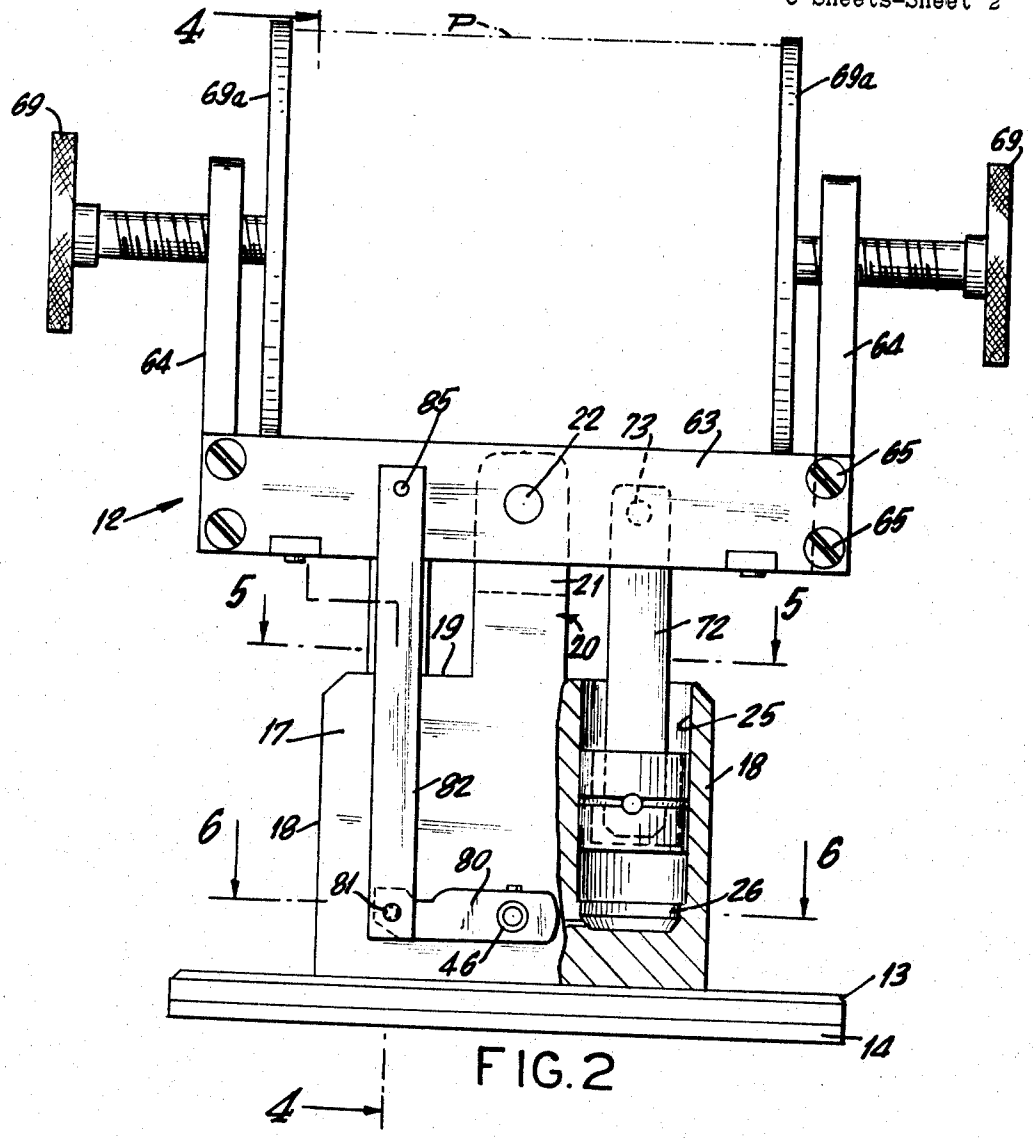


FIG. 2

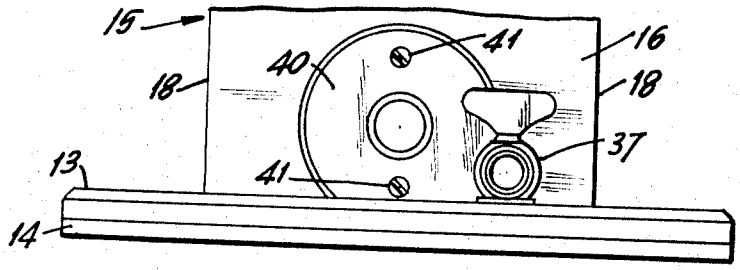


FIG. 3

INVENTOR.
NICHOLAS GRUBELIC

BY

J. B. Felbain
ATTORNEY

Dec. 10, 1968 N. GRUBELIC 3,415,495

APPARATUS FOR SHAKING PAINT CANS

Filed March 15, 1967 5 Sheets-Sheet 3

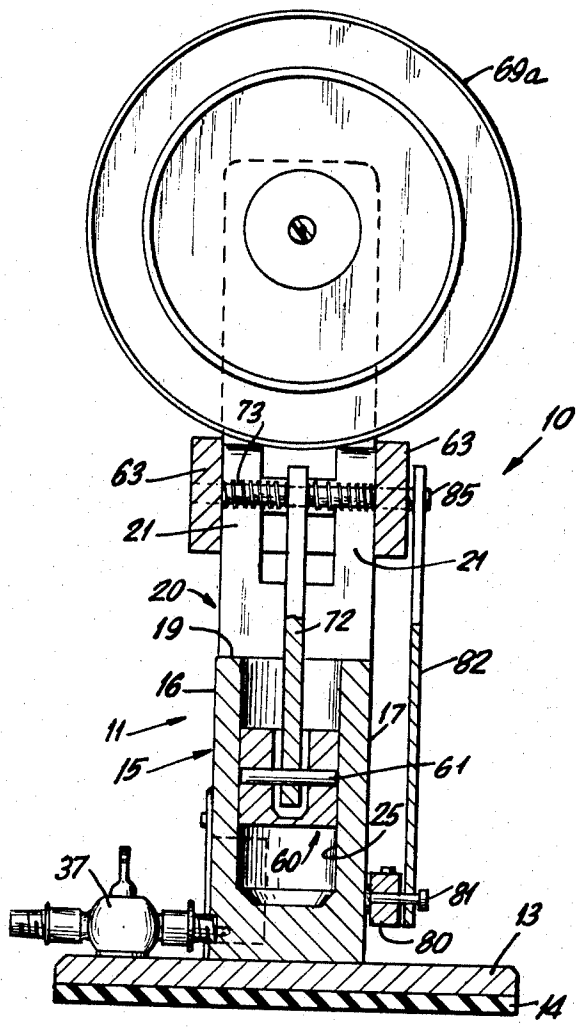


FIG.4

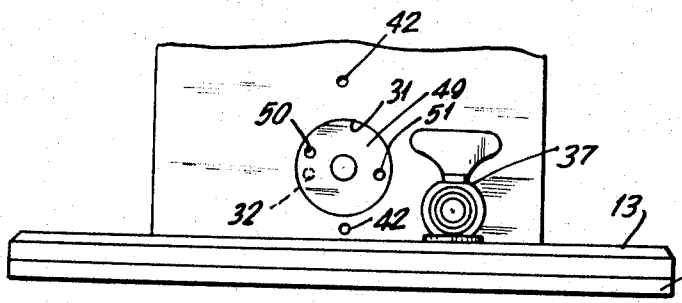


FIG. 7

INVENTOR.
NICHOLAS GRUBELIC

BY

J. B. Felsblin
ATTORNEY

Dec. 10, 1968 N. GRUBELIC 3,415,495

APPARATUS FOR SHAKING PAINT CANS

Filed March 15, 1967 5 Sheets-Sheet 4

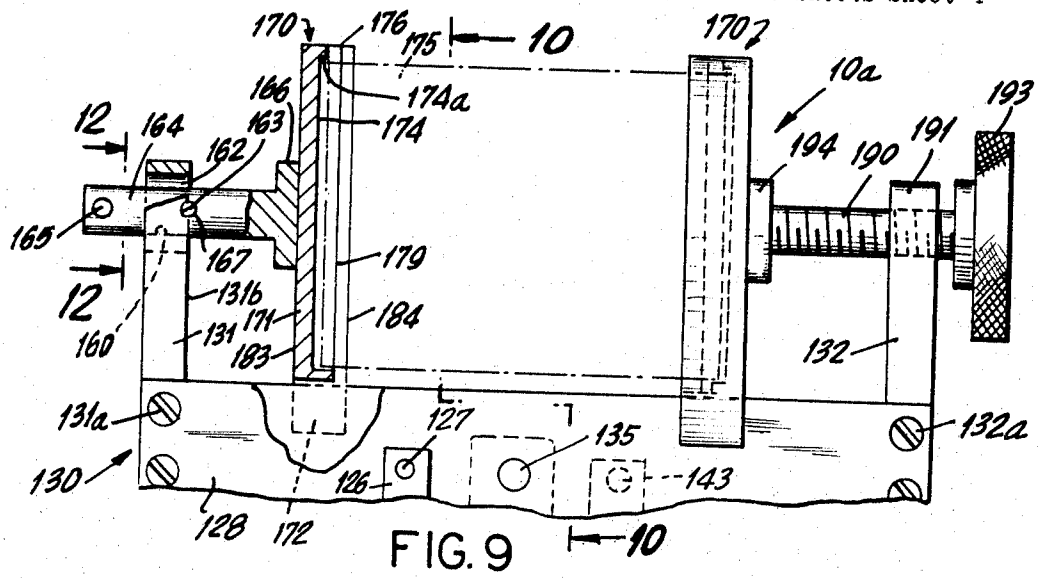


FIG. 9

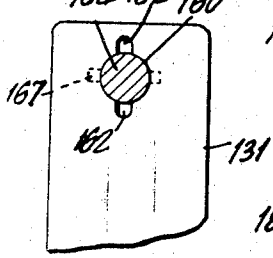


FIG. 12

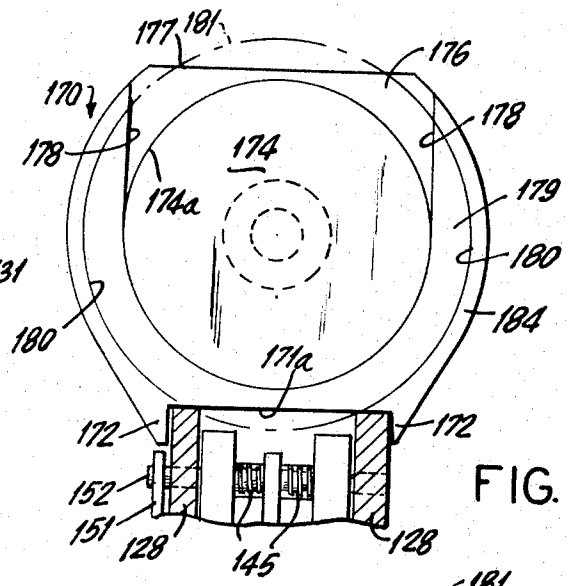


FIG. 10

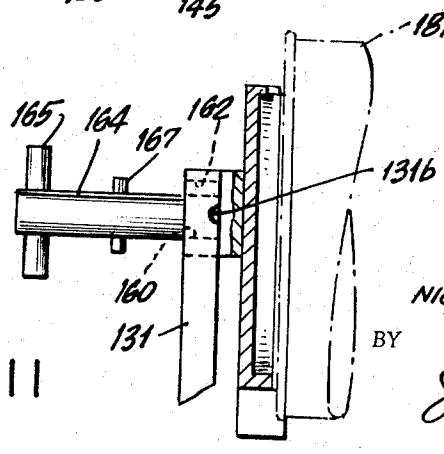


FIG. 11

INVENTOR.
NICHOLAS GRUBELIC

BY

J. B. Felsheim

ATTORNEY

Dec. 10, 1968 N. GRUBELIC 3,415,495

APPARATUS FOR SHAKING PAINT CANS

Filed March 15, 1967 5 Sheets-Sheet 5

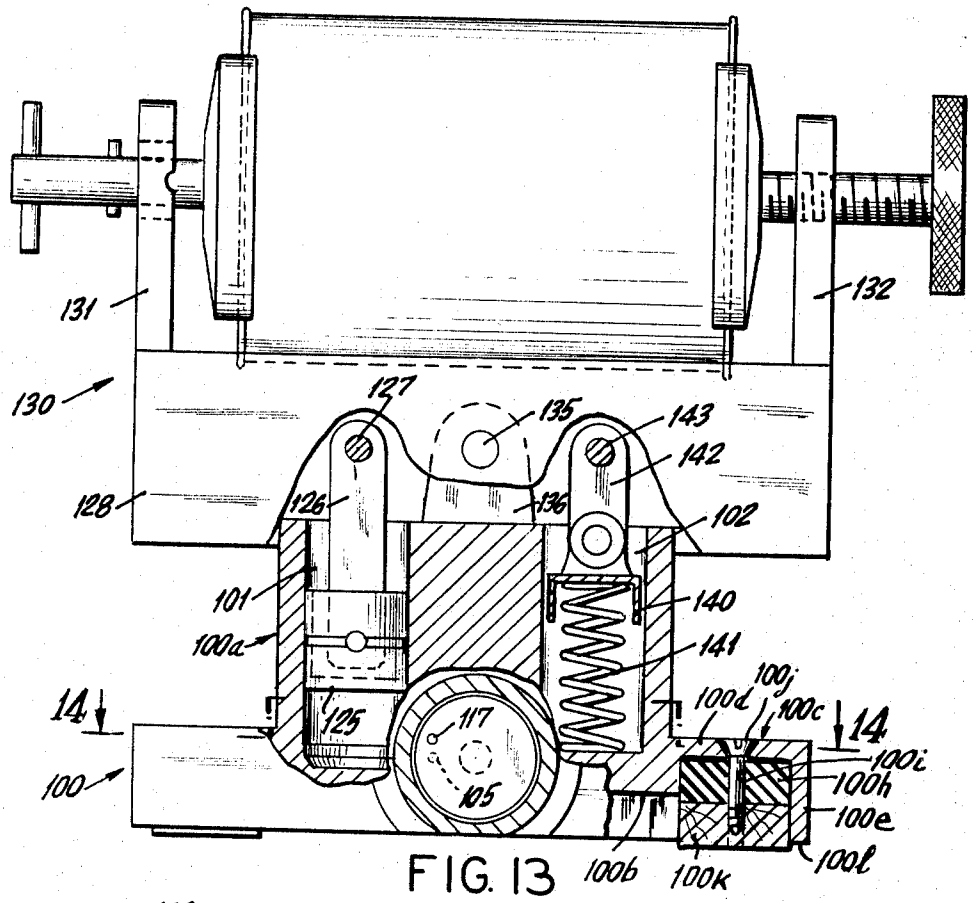


FIG. 13

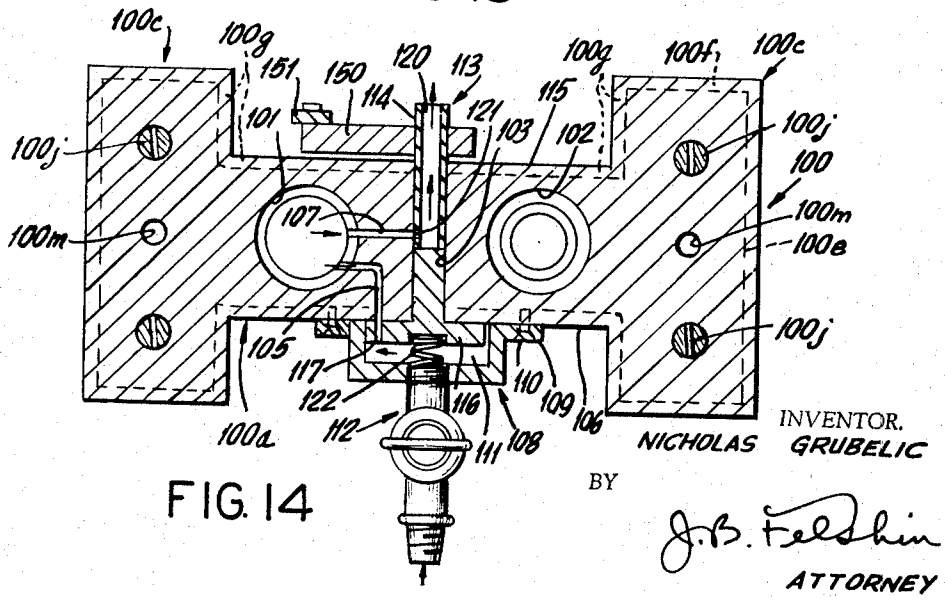


FIG. 14

INVENTOR.
NICHOLAS GRUBELIC

BY

J. B. Feldshin

ATTORNEY

United States Patent Office 3,415,495
Patented Dec. 10, 1968

3,415,495

APPARATUS FOR SHAKING PAINT CANS

Nicholas Grubelic, 480 NW. 12th St.,
North Miami, Fla. 33161

Filed Mar. 15, 1967, Ser. No. 623,288
18 Claims. (Cl. 259—75)

ABSTRACT OF THE DISCLOSURE

A can shaker for paints or other material comprising a clamp adjustable to carry different sized cans, centrally pivoted to a base and oscillated by compressed air actuated means controlled by a valve actuated by the oscillation of the clamp to alternately feed compressed air and exhaust compressed air.

Brief summary of the invention

This invention relates to apparatus for shaking paint cans and the like articles.

An object of this invention is to provide apparatus of the character described comprising a clamp to receive and hold various sized cans of paint or other substance to be shaken and mixed, compressed air control means to oscillate the clamp, and means controlled by the oscillation of the clamp to control said compressed air control means.

Another object of this invention is to provide apparatus of the character described comprising a base, a can clamp pivoted thereto mediately the ends thereof, said base being provided with at least one cylinder for a piston linked to said clamp and valve means to control feed of compressed air to the cylinder and exhaust of air from the cylinder, and said valve means being operatively connected to said clamp.

A further object of this invention is to provide an apparatus of the character described in which the clamp comprises an oscillating member, and means are slidably mounted thereon to grip opposite ends of a can for clamping the latter.

A still further object of this invention is to provide apparatus of the character described having a clamp which will fit both pint and quart cans.

Yet another object of this invention is to provide apparatus of the character described in which the clamp is linked to a piston in a cylinder formed in the base of the apparatus and is also linked to a spring pressed member on said base, and wherein the compressed air moves the piston in its cylinder to rotate the clamp in one direction, and in which the spring pressed member rotates the clamp in an opposite direction, to exhaust air from a cylinder.

Still another object of this invention is to provide a strong and durable apparatus of the character described which shall be relatively inexpensive to manufacture, which shall be smooth and positive in operation, easy to maintain and yet practical and efficient to a high degree in use.

Other objects of this invention will in part be obvious and in part hereinafter pointed out.

The invention accordingly consists in the features of construction, combinations of elements, and arrangement of parts which will be exemplified in the construction hereinafter described, and of which the scope of invention will be indicated in the following claims.

Brief description of the several views of the drawing

In the accompanying drawing, in which are shown various illustrative embodiments of this invention,

FIG. 1 is a top plan view of apparatus embodying the invention;

FIG. 2 is a side elevational view thereof, with parts broken away and in cross-section;

FIG. 3 is a front elevational view of the lower end of the apparatus showing the side opposite of that shown in FIG. 2;

FIG. 4 is a cross-sectional view taken on line 4—4 of FIG. 2;

FIG. 5 is a cross-sectional view taken on line 5—5 of FIG. 2;

FIG. 6 is a cross-sectional view taken on line 6—6 of FIG. 2;

FIG. 7 is a view similar to FIG. 3 but with the closure member removed;

FIG. 8 is a partial cross-sectional view taken on line 8—8 of FIG. 6;

FIG. 9 is a partial front vertical view of apparatus embodying a modified form of the invention, with parts broken away and in cross-section, and showing the clamp in position for gripping a pint size can;

FIG. 10 is a cross-sectional view taken on line 10—10 of FIG. 9;

FIG. 11 is a partial view similar to FIG. 9 but showing the position of a clamp part when gripping a quart size can;

FIG. 12 is a cross-sectional view taken on line 12—12 of FIG. 9;

FIG. 13 is a side elevational view of the structure shown in FIG. 9, with part of the base in cross-section; and

FIG. 14 is a cross-sectional view taken on line 14—14 of FIG. 13.

Detailed description of the invention

Referring now in detail to the drawing, **10** designates apparatus embodying the invention. Said apparatus comprises a base **11** on which is mounted for oscillation, a clamp **12**.

The base **11** comprises a flat base plate **13** to the underside of which a pad **14** may be attached. Fixed to the top of the base plate **13**, is a base block **15** of substantially rectangular horizontal cross-section and provided with a front face **16**, a rear face **17** and side faces **18**. The base block **15** has a top horizontal surface **19**. Extending upwardly from the top surface **19** is a central projection **20** provided with a pair of front and rear parallel upwardly projecting apertured ears **21** carrying a horizontal transverse cross pin **22** fixed against rotation by said screws **23**. The pin **22** projects forwardly and rearwardly beyond the ears **21** in opposite directions, as at **24**, for the purpose hereinafter appearing.

The base block **15** is furthermore formed with a pair of parallel vertical cylindrical bores **25** located on opposite sides of the projection **20** and spaced equal distances from the pin **22**. The cylindrical bores **25** are open at the top. They may have reduced portions **26** at their lower ends. The block **15** is formed with a transverse horizontal bore **30** extending to the rear surface **17** and located substantially at the level of the lower ends of the cylinders **25**. The axis of bore **30** is in a vertical plane passing through the axis of pin **22**. The block **15** is counterbored at the surface **16** thereof, to form an air pressure chamber **31** communicating with the bore **30**. Said block is furthermore formed with symmetrical passages **32** leading from the lower ends of the cylinders **25** to an annular shoulder **33** formed between the chamber **31** and the bore **30**. These passages **32** are located on opposite sides of the bore **30**. The block **15** is further formed with a screw threaded opening **34** in the surface **16** thereof and at one side of the block, and with a passage **35** connecting said screw threaded opening with said chamber **31**. Said block is furthermore formed with outlet passages **36** connecting the lower ends of the cylinders **25** with diametrically opposed sides of the bore **30**.

Screwed to the threaded opening **34** is a valve **37** pro-

vided with a petcock 38. The valve 37 may be connected to any suitable source of compressed air (not shown). When the petcock 38 is open, compressed air will pass through the passage 35 to the chamber 31. The chamber 31 may be closed by a closure member 40 which is attached to the block by screws 41 passing through threaded openings 42 in the block. The closure member 40 is formed with a central socket 43 at its inner surface, for the purpose hereinafter appearing.

Rotatably mounted within the bore 30 is a valve member 45. The valve member 45 comprises an axial valve part 46 surrounded by a valve part 47. Valve part 47 comprises a portion 48 journaled within the bore 30 and is provided with a circular flange 49 at its front end, contacting the annular shoulder surface 33 of the chamber 31. Valve part 47 may be made of plastic and is fixed in any suitable manner to the valve part 46 which may be made of metal. The flange 49 is formed with two openings 50 and 51. In one angular position of valve member 45, opening 51 registers with one passage 32 in which position the opening 50 is offset from the other passage 32. Such position is shown in FIG. 7. In such position compressed air from chamber 31 will pass to the passage 32 which is aligned with the opening 51 to bring compressed air to the lower end of the cylinder 25 shown on the left side of FIG. 6. Valve part 46 projects rearwardly beyond surface 17 of block 15 and is formed with an axial opening 46*a* terminating short of the front end of said part, thereby forming a tubular rear end portion leading to the atmosphere. The tubular rear end portion is formed with a pair of angularly offset openings 54, 55. Valve portion 48 of valve part 47 is formed with openings 56 and 57 registering with the openings 54, 55, respectively. When the opening 51 registers with the passage 32 on the left side of FIG. 6, openings 55, 57 register with the passage 36 leading to the cylinder 25 on the right side of FIG. 6. Upon rotating the valve member 45 in a counterclockwise direction, looking at FIG. 7, and hence in a clockwise direction, looking at FIG. 8, opening 50 will register with the passage 32 on the right side of FIG. 6 and opening 51 will become aligned with passage 32 on the left side of FIG. 6; and at the same time openings 55 and 57 will become misaligned with respect to the passage 36 on the right side of FIG. 6 and openings 54, 56 will register with the passage 36 on the left side of FIG. 6.

Within each of the cylindrical bores 25 is a piston 60 carrying a transverse pin 61.

Clamp 12 comprises a pair of parallel coextensive bars 63. Between the ends of the parallel bars 63 are vertical parallel plates 64 fixed to said bars by screws 65. The plates 64 project up above the bars 63. Said plates 64 are formed with aligned screw threaded openings 67. Screwed through the threaded openings 67 are screws 68 each provided with a knob 69 at its outer end. Attached to or mounted on the inner ends of the screws 68 are round clamp plates 69*a*. By turning the knobs 69, the plates 69*a* will move toward each other or away from each other depending upon direction of rotation of the knobs. A paint can P may be placed between the plates 69*a* and tightly held in place by properly operating the knobs 69.

The upstanding ears 21 are disposed just inside the parallel bars 63. The outer ends 24 of the pin 22 is journaled in aligned openings 70 in the bars 63. The pins 61 on the pistons 60 are connected by links 72 to parallel cross pins 73 mounted on and between the bars 63. The upper ends of the links 72 have openings through which the pins 73 pass.

Fixed to the rearwardly projecting portion of valve part 46 is a radial arm 80 carrying a pin 81 at its outer end. The pin 81 is connected by link 82 to a pin 85 fixed to the rear bar 63. On each pin are placed coil compression springs 74 interposed between the upper end of link 72 and bars 63. A coil compression spring 90 is interposed between closure member 40 and valve part 46 and has one end received in socket 43.

The operation of the device will now be described. As the compressed air coming through the valve 37 enters chamber 31, in the position of the apparatus shown in the drawings, compressed air passes through opening 51 and passage 32 to the lower end of the left cylinder shown in FIG. 6, thereby causing the piston in said left cylinder to rise. At the same time the piston in the right cylinder moves downwardly and air in the right cylinder shown in FIG. 6 and below the piston, passes through passage 36 and openings 57, 55 to the center bore 46*a*, and is exhausted. As this motion proceeds, valve member 45 is rotated by link 82 and arm 80 to cause compressed air to enter the right cylinder of FIG. 6 and to raise the right piston and lower the left piston and to exhaust the air from the left cylinder through passage 36 and openings 56, 54. This oscillating motion is continuous to shake the can P and mix paint or whatever other material is in the can.

In FIGS. 9–14 there is shown apparatus 10*a* embodying a modified form of the invention. The apparatus 10*a* comprises a base 100 formed with a pair of vertical cylindrical bores 101 and 102 open at their upper ends. The base is, furthermore, formed with a horizontal through bore or openings 103 extending from front to rear. Said base is furthermore formed with an air inlet passage 105 extending from a front face 106 thereof to the lower end of the cylindrical bore 101. The base is furthermore formed with an air outlet passage 107 extending from the lower end of the cylindrical bore 101 to the middle of the horizontal bore 103.

Attached to the front face 106 of the base is a cap or case 108 surrounding the front end of the bore 103.

The case 108 may be circular and formed with an annular flange contacting front face 106 and fixed thereto by means of screws 110. The case 108 forms a chamber 111. Screwed into the front wall of the case 108 is an air valve 112 for supplying compressed air to the chamber 111. The valve 112 may be connected to a suitable source of compressed air.

Fitted within the bore 103 is a valve member 113. Valve member 113 comprises a horizontal round stem 114 extending all the way through said passage and projecting rearwardly beyond the rear face 115 of the base. At the front end of the stem 114 is an annular head or flange 116 contacting the front face 106. The valve member 113, as will appear hereinafter, oscillates with respect to the base.

The head or flange 116 is located within the chamber 111. It is formed with a through opening 117 which in one angular position of the vlave member, registers with the passage 105 and in another angular position thereof is offset therefrom.

The stem 114 is formed with an axial opening 120 open at the rear end of said stem. Said stem 114 is formed with a through opening 121 communicating with the axial passage or opening 120.

When the valve member 113 is in a position where the opening 117 registers with the passage 105, the opening 121 is offset from the passage 107. In the position of the valve member 113, where the opening 117 is offset from the passage 105, opening 121 registers with the passage 107. Thus, compressed air passing through the valve 112 and entering in the chamber 111 will pass through the opening 117 into passage 105 and to the lower end of the cylindrical bore 101 to admit compressed air to the lower end of said bore. When the valve member is in such position, compressed air cannot exhaust through the opening 121 which is then offset from the passage 107. When the valve member 113 is moved to shut off passage 105, then compressed air is exhausted from passage 107, opening 121 and passage 120. A compression spring 122 may be interposed between the casing 108 and the valve member 113, as shown in FIG. 14 of the drawing.

Slidable in the cylindrical bore **101** is a piston **125**, connected by link **126** to a horizontal cross pin **127** mounted on the side walls **128** of a clamp **130**. The plates **128** are coextensive and parallel to one another and are attached to opposite sides of a pair of parallel, vertical plates **131**, **132** as by screws **131***a* and **132***a*, respectively. The plates **128** are connected by a transverse pin **135** mounted on apertured ears **136** extending upwardly from the base.

Slidably mounted in the cylindrical bore **102** is an inverted cup **140**. A coil compression spring is interposed between the cup **140** and the bottom of the bore **102**. The cup **140** is connected by a link **142** to a transverse pin **143** mounted on the plates **128**. The pin **143** is parallel to and at the horizontal level of the pin **127**.

As the piston **125** moves up due to supply of compressed air to the cylinder **101**, the clamp **130** will oscillate in one direction to compress the spring **141**. When compressed air is shut off from the cylindrical bore **101**, compressed spring **141** will raise the inverted cup **140** to oscillate the clamp in an opposite direction thereby moving the piston **125** downwardly in the bore **101** to exhaust the air through the passage **107**, opening **121** and opening **120**. Centering springs **145** may be mounted on cross pins **127** and **143** and interposed between the links **126**, **142** respectively, and the parallel plates **128**.

Fixed to the rearwardly projecting end of the stem **114** is an arm **150** connected by a link **151** to a pin **152** on the rear plate **128**. As the clamp **130** oscillates, the link **151** will hence oscillate arm **150** to thereby oscillate the valve member **113**. Thus when the valve **112** is opened and compressed air is allowed to enter chamber **111**, the clamp will be oscillated back and forth due to the synchronization of the movement of the valve member **113** with the movement of the piston **125** and the cup **140**.

Means is provided on the clamp to mount either pint or quart size paint cans thereon. To this end, plate **131** is formed near its upper end with a through opening **160**. It is also formed with diametrically opposed through notches **162** extending upwardly and downwardly from the opening **160**. The notches **162** are vertically aligned with one another and extend in opposite directions. The inner face **131***b* of plate **131** is formed with horizontally aligned diametrically opposed notches **163** extending in opposite directions. Extending through the through opening **160** is a longitudinal, horizontal rod **164**. Fixed to the outer end of the rod is a cross handle **165**. At the inner end of the rod **164** is a pusher head **166**. Fixed to the rod **164** are transverse outwardly extending pins **167**, spaced inwardly from and parallel to the cross handle **165**. The transverse pins **167** will fit into the notches **163** when said transverse pins are in horizontal positions as shown in FIG. 9 of the drawing. However, by turning the handle **165** through an angle of 90°, the pins **167** will become aligned with the notches **162** and then the rod **164** may be pulled to the left so that pins **167** will pass through the notches **162** to the position shown in FIG. 11. When the rod **164** is in the position of FIG. 9, the clamp will accommodate pint size paint cans.

Slidably mounted on the plates **128** is a paint can grip member **170**. Member **170** has a back wall **171** adapted to be contacted by the pusher head **166**. Said member **170** has a bottom horizontal edge **171***a* resting on the upper edges of the plates **128**. It is furthermore formed with a pair of downwardly extending flanges **172** slidably contacting the outer surfaces of said plates **128**. Said member **170** is formed with a circular depression **174** of a diameter to receive one end of a pint size can **175**. Said depression **174** is annular forming an internal shoulder or periphery **174***a*. Said member **170** is, furthermore, formed with an inner surface **176** spaced from the depressed surface **174**. Said member **170** has a top horizontal edge **177** spaced above the inner peripheral edge **174***a*. The vertical surface **176** extends up to the horizontal edge **177** and to a pair of parallel inner vertical shoulders **178** tangent to the inner peripheral edge **174***a*. With such construction, one end of a pint can may be slid down along the surface **176** between the vertical shoulders **178** until the can is centered with respect to the depression **174** and then moved longitudinally against said depression.

Said member **170**, furthermore, is formed with a surface **179** spaced from the surface **176** and extending to inner oppositely curved shoulders **180** forming part of a circle of a diameter receiving one end of a quart paint can. The surface **179** extends to the edge **171***a*. The bottom half of the inner shoulder **174***a* extends to the surface **179**. One end of a quart paint can may be inserted between the inner shoulders **180** to contact the surface **179**. A quart paint can, designated by numeral **181**, will project below the edge **171***a* and above the edge **177** as shown in FIG. 10. The projections **172** are of a thickness to extend from the outer surface **183** of member **170** to the inner surface **184** of said member.

Member **170** may be slidably moved lengthwise of the clamp from the quart paint can receiving position to the pint paint can receiving position.

A second member **170***a* is slidably mounted on the plates **128** and is symmetrical to the first member **170**. The members **170** may be identical and can move toward and away from each other. However to move the second member **170**, there is provided a screw **190** screwed through a threaded opening **191** in the plate **132** and disposed coaxially of the rod **164**. A knob or handle **193** is fixed to the outer end of the screw **190** and a pusher head **194** is fixed to the inner end of the screw. Thus the rod **164** may be moved to desired pint or quart position and the screw **190** is then manually rotated to tightly clamp either a pint or quart can on the clamp. In either case, the paint can will be centered with respect to the clamp member **130**.

The base **100** comprises a central portion **100***a* formed with an undersurface **100***b*. Extending outwardly of the central portion **100***a* are a pair of wings **100***c* which project both rearwardly and forwardly of the central portion and extend below said undersurface **100***b*.

The wings **100***c* are hollow at their undersides forming top walls **100***d*, end walls **100***e*, front and rear walls **100***f*, and inner walls **100***g*. Contacting the underside of the top walls **100***d* are sponge rubber pads **100***h* formed with vertical through openings **100***i* receiving screws **100***j* passing through said through openings **100***i* and screw into wooden blocks **100***k*, which extend below the underedges **100***l* of the wings. The top walls **100***d* as well as the pads **100***h* and the wooden blocks **100***k* are formed with through openings **100***m* to receive screws or bolts or other fastening members (not shown) for attaching the base to a bench.

The provision of rubber pads **100***h* as well as the provision of the pad **14** as shown in FIG. 4, has been found to be important since the pads absorb shock when the paint shaker is in motion. The pads also prevent or eliminate noise when the machine is in use.

It will thus be seen that there is provided an apparatus in which the several objects of this invention are achieved, and which is well adapted to meet the conditions of practical use.

As possible embodiments might be made of the above invention, and as various changes might be made in the embodiments above set forth, it is to be understood that all matter herein set forth or shown in the accompanying drawings, is to be interpreted as illustrative and not in a limiting sense.

I claim:

1. In combination, a base, a member pivoted to said base, means on said member, to clamp opposite ends of a can therebetween, and compressed air actuated means to oscillate said member for shaking a can clamped between said clamp means, said compressed air actuated means comprising a cylinder fixed in the base, a piston in the cylinder, link means pivoted to said piston and to said member, to connect said piston to said member on one

side of its pivot, means to feed compressed air to said cylinder and to exhaust air from said cylinder, said feed means comprising a valve element mounted for oscillation in the base, and means to connect said valve element to said member for synchronous oscillating movement therewith.

2. The combination of claim 1, and spring means on the other side of said pivot to move said member relative to said base.

3. In combination, a base, a member pivoted mediately the ends thereof to said base, means at each of the opposite ends of said member, to clamp opposite ends of a can therebetween, and compressed air actuated means to oscillate said member for shaking a can clamped between said clamp means, said compressed air actuated means comprising a pair of cylinders formed in said base, pistons in said cylinders, link means connecting said pistons to said member on opposite sides of the pivot for said member, means to alternately feed compressed air to each cylinder and simultaneously exhaust air from the other cylinder, said last means including a valve, and means cooperative with said valve and said member to cause back and forth movement of said valve in synchronization with the oscillation of said member.

4. The combination of claim 3, said alternate feed means comprising, a chamber in said base, means to feed compressed air to said chamber, said base having passages connecting the lower ends of said cylinders to said chamber, said valve being mounted for oscillation relative to said base and having means disposed in said chamber, to alternately open and close said passages as said valve is oscillated, said base having air relief passages extending to said cylinders, and said valve having an axial exhaust passage leading to the atmosphere, and formed with openings connecting the exhaust passages alternately with said relief passages as said valve is oscillated.

5. The combination of claim 4, said means connecting said member to said valve comprising a radial arm fixed to said valve and link means connecting said arm to said member.

6. The combination of claim 3, said member comprising a pair of parallel walls, said link means comprising a pair of parallel transverse pins fixed to and disposed between said parallel walls and on opposite sides of said pivot, and a pair of links pivoted to said pistons and having openings through which said parallel pins pass.

7. The combination of claim 6, and a pair of coil compression springs on each pin between each link and said pair of parallel walls.

8. In combination, a base, a member pivoted to said base, means on said member, to clamp opposite ends of a can therebetween, compressed air actuated means to oscillate said member for shaking a can clamped between said clamp means, said compressed air actuated means comprising a cylinder fixed in the base, a piston in the cylinder, link means pivoted to said piston and to said member, to connect said piston to said member on one side of its pivot, means to feed compressed air to said cylinder and to exhaust air from said cylinder, and comprising a valve element mounted for back and forth movement in the base, and means cooperative with said valve element and said member to cause back and forth movement of said valve element in synchronization with the oscillatory movement of said member.

9. The combination of claim 8, said member comprising a pair of opposed end walls fixed to said member, aligned separate screws screwed to said walls, a knob on the outer end of each of said screws and a plate on the inner end of each screw to engage an end of a can.

10. The combination of claim 8, each clamp means comprising a plate slidably mounted on said member, and screw threaded means to move at least one of said plates relative to said member.

11. The combination of claim 8, said clamp means comprising means adjustable to clamp cans of different length and diameters to said member.

12. The combination of claim 11, each clamp means comprising a clamp plate slidable and nonrotatably mounted on said member.

13. The combination of claim 12, each clamp plate having recesses of different diameters to receive ends of cans of different diameters.

14. The combination of claim 8, resilient pad means attached to the underside of the base so that the base may rest on a bench, and said base being provided with means to fasten the base to the bench.

15. In combination, a base, a member pivoted mediately the ends thereof to said base, means at each of the opposite ends of said member, to clamp opposite ends of a can therebetween, and compressed air actuated means to oscillate said member for shaking a can clamped between said clamp means, said clamp means comprising means adjustable to clamp cans of different lengths and diameters to said member, said clamp means comprising at least one clamp plate movable longitudinally of said member, a rod slidable in said member and having means to move said clamp plate, and means to hold said rod against movement in one direction, relative to said member, in a plurality of positions.

16. In combination, a base, a member pivoted mediately the ends thereof to said base, means at each of the opposite ends of said member, to clamp opposite ends of a can therebetween, and compressed air actuated means to oscillate said member for shaking a can clamped between said clamp means, said compressed air actuated means comprising a cylinder formed in said base, a piston in said cylinder, means to link said piston to said member on one side of said pivot, said base being formed with a bore, a valve element mounted in said bore for oscillation and formed with a passage leading to the atmosphere, means in the base forming a chamber, means to supply compressed air to said chamber, said base being cylinder and with a second passage connecting said cylinder to said bore, said valve element having means to alternately open said chamber to said first passage while closing said second passage to the passage in the valve element which leads to atmosphere and to close off the first passage from said chamber and open said second passage to said passage in said valve element which leads to atmosphere, and means cooperative with said valve element and member to oscillate said valve member in synchronization with said member.

17. The combination of claim 16, and said clamp means comprising means to clamp various size cans to said member.

18. The combination of claim 16, and spring means interposed between said member and base, and disposed on the opposite side of said pivot.

References Cited

UNITED STATES PATENTS

2,109,233	2/1938	Jorgenson	259—72
2,151,123	3/1939	Lavine	259—75
2,599,833	6/1952	Holmlund	259—72
2,894,309	7/1959	Brzowski	259—72 X
3,301,534	1/1967	Orser	259—75

ROBERT W. JENKINS, *Primary Examiner.*