April 23, 1963 C. KNOTT 3,086,233

BOWLING BALL CLEANING MACHINE

Filed Sept. 8, 1960 5 Sheets-Sheet 1

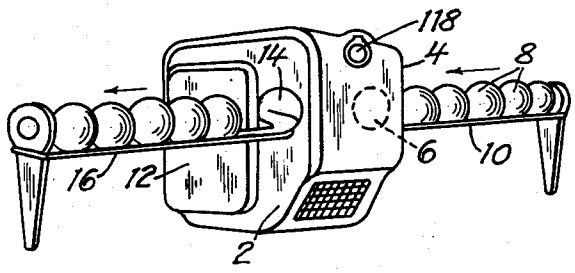


Fig. 1.

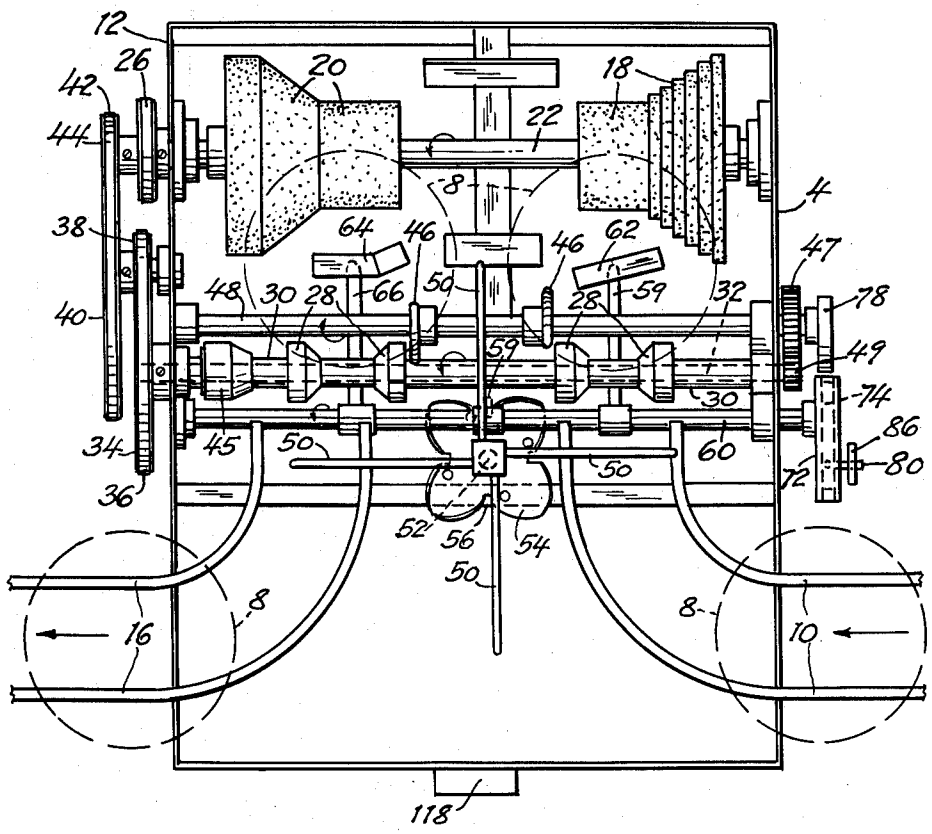


Fig. 2.

INVENTOR.
CARL KNOTT
BY Albert S Perry.
ATTORNEY

April 23, 1963 C. KNOTT 3,086,233

BOWLING BALL CLEANING MACHINE

Filed Sept. 8, 1960 5 Sheets-Sheet 2

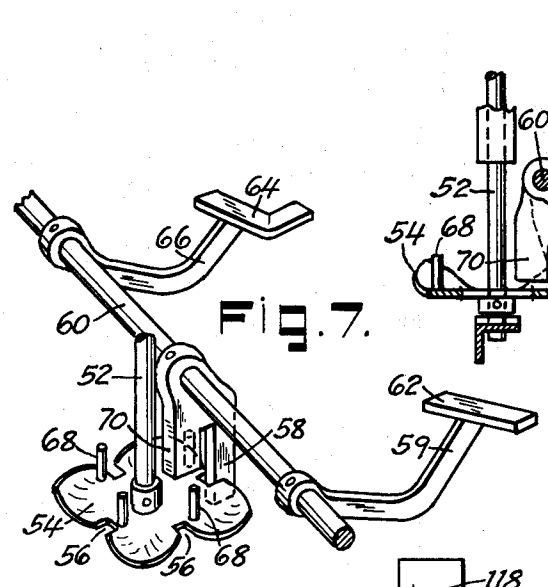


Fig. 7.

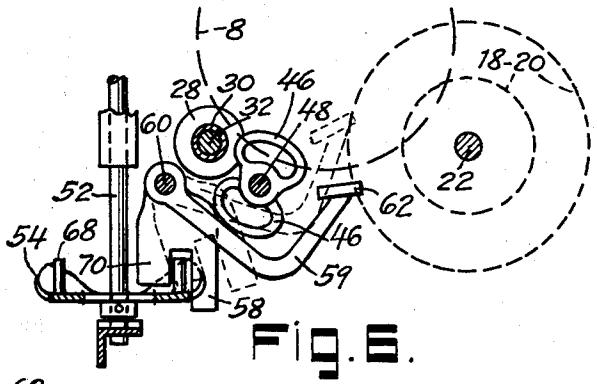


Fig. 6.

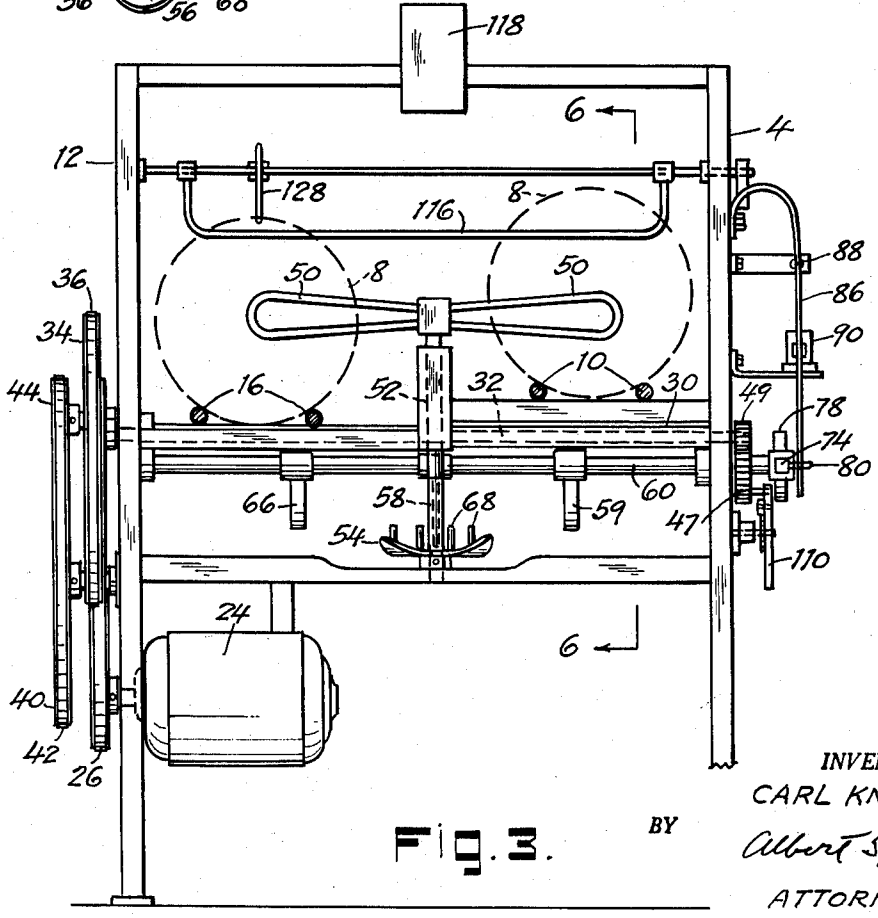


Fig. 3.

INVENTOR.
CARL KNOTT
BY
Albert Sperry
ATTORNEY

April 23, 1963 C. KNOTT 3,086,233

BOWLING BALL CLEANING MACHINE

Filed Sept. 8, 1960 5 Sheets-Sheet 3

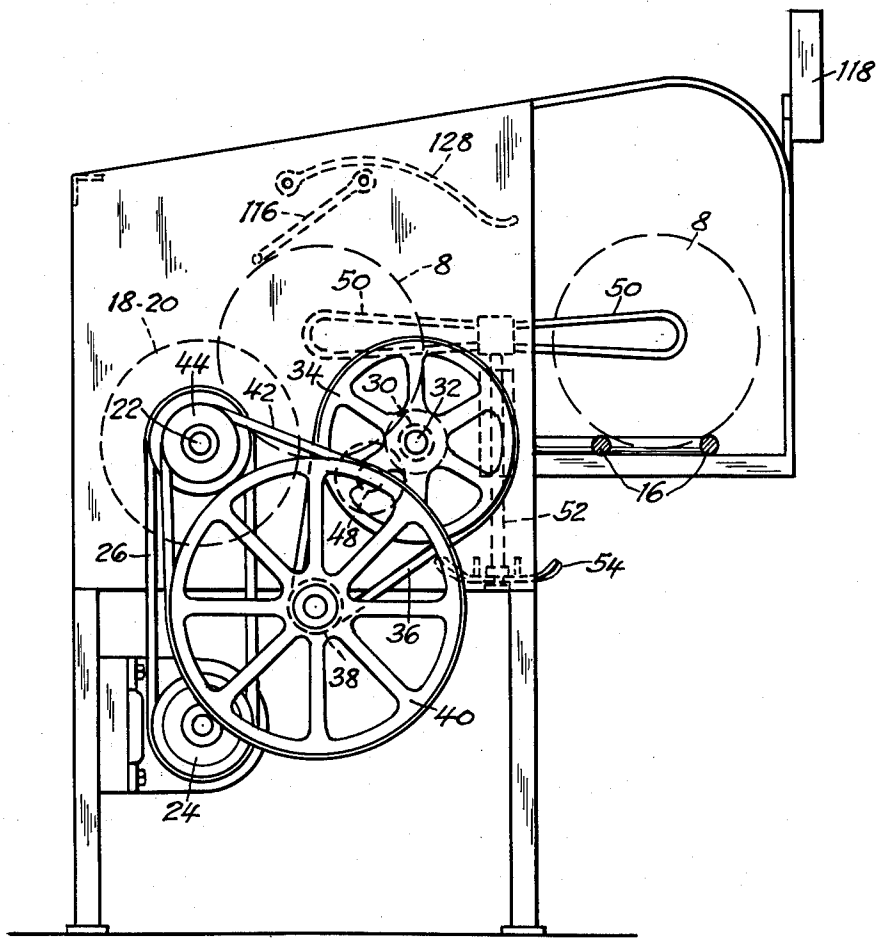


Fig. 4.

INVENTOR.
CARL KNOTT
BY Albert Sperry
ATTORNEY

April 23, 1963 C. KNOTT 3,086,233

BOWLING BALL CLEANING MACHINE

Filed Sept. 8, 1960 5 Sheets-Sheet 4

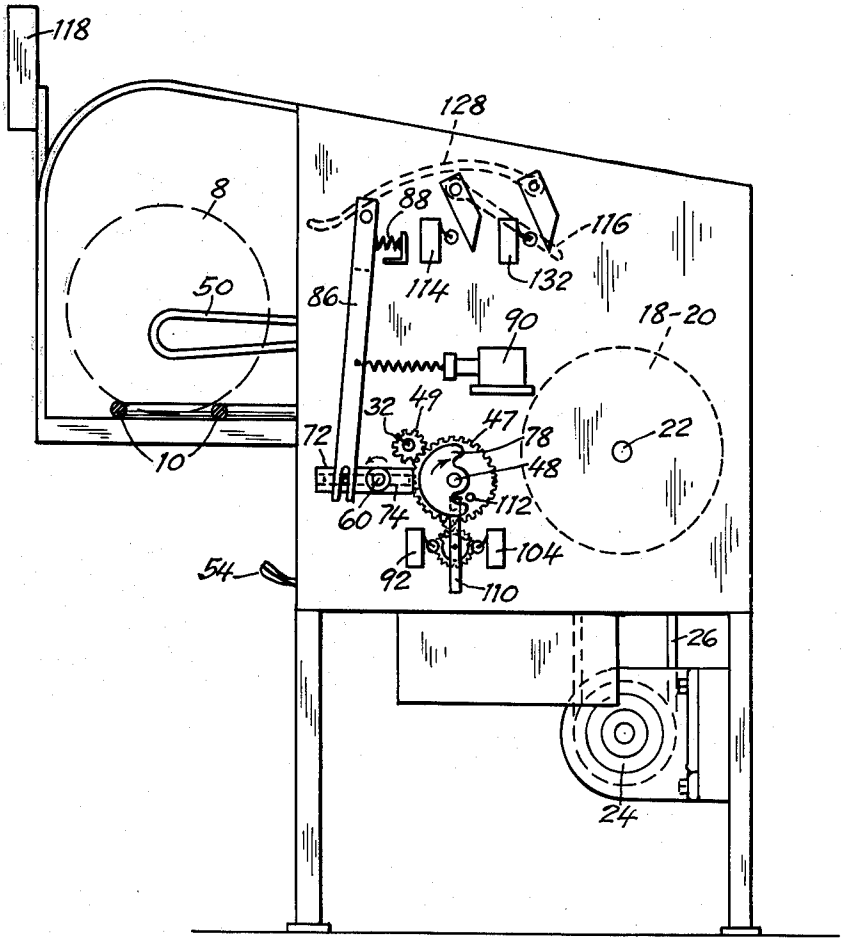


Fig. 5.

INVENTOR.
CARL KNOTT
BY Albert Sperry
ATTORNEY

April 23, 1963 C. KNOTT 3,086,233

BOWLING BALL CLEANING MACHINE

Filed Sept. 8, 1960 5 Sheets-Sheet 5

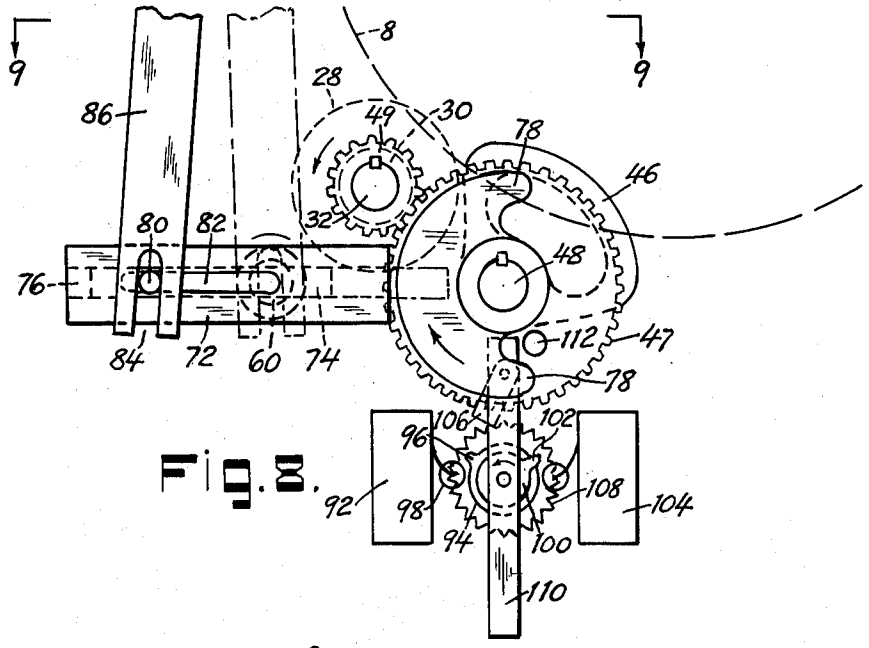


Fig. 8.

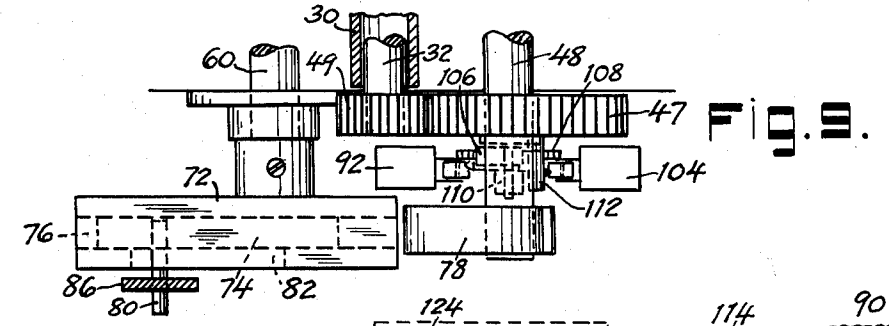


Fig. 9.

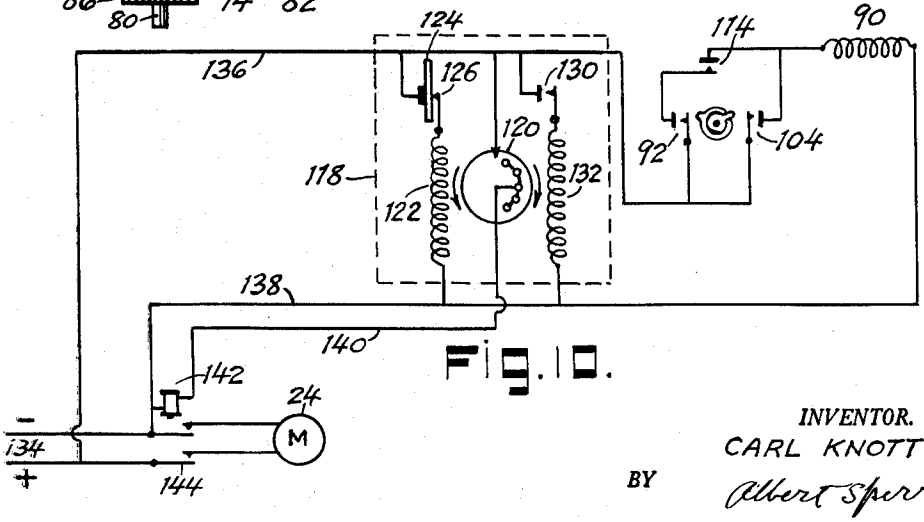


Fig. 10.

INVENTOR.
CARL KNOTT
BY Albert Sperry
ATTORNEY

United States Patent Office 3,086,233 Patented Apr. 23, 1963

3,086,233

BOWLING BALL CLEANING MACHINE

Carl Knott, Cornwells Heights, Pa., assignor to Melvin Blatt, Yardley, Pa.

Filed Sept. 8, 1960, Ser. No. 54,607
10 Claims. (Cl. 15—21)

This invention relates to machines for cleaning and polishing bowling balls and is directed particularly to constructions whereby a plurality of bowling balls may pass one after another through the machine.

Various types of bowling ball cleaners are known but they are generally designed to clean and polish one ball at a time. Considerable time is required to complete both operations with the result that the output of the machines is limited. On the other hand, those constructions which have been capable of receiving one ball after another for cleaning the same have generally been complicated and expensive and have not always been satisfactory in operation.

In accordance with the present invention, a new type of bowling ball cleaning machine is provided which is relatively simple in construction and effective in operation while permitting bowling balls to be supplied and removed from the machine one after another.

Accordingly, the principal object of the present invention is to reduce the cost and simplify the construction of machines for cleaning bowling balls.

Another object of the invention is to provide bowling ball cleaning machines wherein a plurality of bowling balls may be passed through the machine and may be cleaned and polished one after another.

A specific object of the invention is to provide a machine wherein a bowling ball is first subjected to a cleaning operation and then subjected to a polishing operation and one ball can be polished while a second ball is being cleaned whereby the rapidity of discharge of balls from the machine may be increased.

These and other objects and features of the present invention will appear from the following description thereof wherein reference is made to the figures of the accompanying drawings.

In the drawings:

FIG. 1 is a perspective illustrating a typical form of bowling ball cleaning machine embodying the present invention;

FIG. 2 is a top plan view of the construction of FIG. 1 with the cover thereof removed;

FIG. 3 is a front elevation showing the mechanism of the bowling ball cleaner of FIG. 2;

FIG. 4 is an end view of the construction shown in FIG. 2 as seen from the left end;

FIG. 5 is an end view of the construction of FIG. 2 as seen from the right end;

FIG. 6 is a sectional view showing a detail of the construction of FIG. 3 taken on the line 6—6 of FIG. 3;

FIG. 7 is a perspective illustrating the elements of FIG. 6;

FIG. 8 is an enlarged view showing a portion of the cam and control mechanism;

FIG. 9 is a sectional view taken on the line 9—9 of FIG. 8; and

FIG. 10 is a wiring diagram showing one form of circuitry which may be used in the construction of the present invention.

In that form of the invention chosen for purposes of illustration, the bowling ball cleaning machine has an outer cover 2 having an end wall 4 with an opening 6 therein through which bowling balls 8 to be cleaned are movable along inclined supply tracks 10. As shown, the tracks 10 are of such length that they may receive any

desired number of balls to be cleaned for movement into the machine one after another. The opposite end wall 12 of the machine has a discharge opening 14 therein through which cleaned and polished balls may be discharged onto inclined discharge tracks 16 which may hold any desired number of cleaned and polished balls.

Within the machines there is a ball cleaning brush 18 which is preferably formed of stiff wire bristles or other cleaning material. The brush may be of any suitable shape such as cylindrical, or otherwise, but as illustrated is of a tapered or generally concave conical form with the larger end of the brush positioned adjacent the end wall 4 of the cover for the machine. A polishing brush 20 similar to the brush 18 is formed with soft polishing bristles or other polishing material and, as shown, is also of a tapered form and arranged with the larger end thereof adjacent the opposite end wall 12 of the machine. The brushes 18 and 20 are coaxially positioned and preferably are mounted on the same shaft 22 which is driven at a suitable speed by a motor 24 through a belt 26.

In a typical case, the brushes 18 and 20 may be rotated at about 1500 to 1800 r.p.m. but the balls engaging the brushes are retarded and prevented from rotating at such high speed by suitable retarding means. As shown, the retarding means consist of the rubber or other soft sleeves 28 which are carried by the hollow shaft 30. A shaft 32 extends through the hollow shaft 30 and is driven by the pulley 34 through belt 36 and pulley 38. The latter pulley is connected to large pulley 40 which is driven by belt 42 from the pulley 44 secured to the brush driving shaft 22. An over-running clutch or other speed limiting device 45 is interposed between the hollow shaft 30 and driven shaft 32 to limit the speed of rotation of the hollow shaft 32 and sleeves 28 whereby the sleeves tend to retard the rotation of the balls being polished. For this purpose, a "Formsprag" device such as that of United States Patent No. 2,561,600 may be used.

The balls being cleaned and polished rest upon the brushes 18 and 20 and upon the sleeves 28 carried by hollow shaft 30. The balls are rotated by engagement with the brushes but they are retarded in such rotation by the speed limiting means. Therefore, the brushes rotate more rapidly than the balls and vigorously brush the balls so as to clean and polish them effectively. Further, in order to tilt or orient the balls with respect to the brushes so as to avoid cleaning and polishing of a single zone of the ball, tilting members 46 are carried by a shaft 48 and are rotated to engage and lift the balls from time to time. The members 46 are positioned nearer the center of the machine than the enlarged ends of the brushes and lift each ball from the adjacent retarding sleeve 28 so that it will be rotated by the brush which it engages. When tapered brushes are used as shown, the lifting means serve to tilt the balls toward the larger ends of the brushes. The balls are thus periodically displaced with respect to the brushes so that they will be twisted or turned as they rotate to bring different zones of the ball into cleaning and polishing engagement with the brushes. In this way, the entire surface of each ball is subjected to effective cleaning and polishing action.

The shaft 48 which serves to rotate the tilting members 46 is driven by the gear 47 which meshes with a pinion 49 secured to the driven shaft 32. In order to distribute the load applied to the drive means by the action of the ball lifting member 46, that member associated with the cleaning brush 18 is preferably located 180° removed from the lifting member associated with the polishing brush 20. Thus, when one ball is being cleaned by

brush 18 and another is being polished by brush 20, one ball is lifted and caused to orient its positions and then is lowered onto its sleeves 28 to continue with its cleaning or polishing of a different zone of the ball as the other ball is being lifted and oriented. This alternate operation of the lifting members distributes the load on the driving means and continues until the entire surface of each ball has been effectively engaged by the brushes.

The balls to be cleaned and polished move through the machine under the action of gravity and under the control of the control arms 50 of a control device. There preferably are four of the control arms 50 which radiate from a shaft 52. The lower end of shaft 52 has a cloverleaf 54 secured thereto and provided with four notches 56 engageable by a stop member 58 carried by a rock shaft 60.

When the stop member 58 engages one of the notches 56, the shaft 52 is held against rotation and the control arms 50 remain stationary so as to positively prevent displacement of the balls. Thus, the control arm 50 which extends across the lower end of the supply track 10 withholds the balls on the supply track from the cleaning brush 18 while allowing a ball engaging the brush to rotate and orient freely as it is being cleaned. The control arm 50 which projects rearwardly toward the space between the brushes prevents the balls from being displaced laterally and the control arm 50 which extends across the upper end of the discharge track 16 prevents a ball in engagement with the polishing brush 20 from being prematurely discharged onto discharge tracks 16.

When the rock shaft 60 is oscillated, the stop member 58 is withdrawn from the notch 56 in the cloverleaf 54 and the shaft 52 is free to rotate. At the same time a transfer member 62 connected to the rock shaft 60 by an arm 59 and a discharge member 64 connected to the rock shaft 60 by an arm 66 are raised. The transfer member 62 is positioned below the ball that is in engagement with the cleaning brush 18 and is inclined laterally so that when it is raised by the rock shaft 60, the ball will be raised off the brush 18 and retarding sleeves 28 and will be caused to roll sideways from the cleaning brush 18 to the polishing brush 20. At the same time, the discharge member 64 which is positioned below the ball that is in engagement with the polishing brush 20 is raised. The upper end of the discharge member is inclined forwardly so that when it is raised by operation of the rock shaft 60, it will lift the ball from the polishing brush 20 and retarding sleeves 28 and direct it onto the upper end of the discharge tracks 16 for delivery from the machine.

Since the balls are actually advanced by gravity as they roll off the end of the supply tracks 10 and roll off the raised and inclined surfaces of the transfer and discharge members, the balls engage the arms 50 and serve to rotate the arms and the shaft 52 when the rock shaft is oscillated. However, over-run of the arms is prevented by providing pins 68 on the cloverleaf 54 which are positioned to be engaged by the portion 70 of the stop member 58 when the stop member is withdrawn from a notch 56 by the cloverleaf to the dotted line position of FIG. 6. The arms 50 are therefore limited to rotation through an angle of 90° each time the rock shaft 60 is oscillated.

The rock shaft 60 is oscillated by the tilting of a slotted T head member 72 secured to the end of the rock shaft. A slide member 74 is positioned in the bore 76 in the T head member 72 and is arranged to be projected periodically to the dotted line position of FIG. 8 so that it will be engaged by a cam member 78 rotatable with the shaft 48 each time the rock shaft is to be oscillated. For this purpose, the slide 74 is provided with a pin 80 which projects through a slot 82 in the T head member 72 and is received in the slot 84 in the end of an

actuating lever 86. When the actuating lever 86 is in its retracted full line position of FIG. 8, the slide 74 is withdrawn from engagement with the cam 78. However, when the actuating lever is moved to the dotted line position of FIG. 8, the slide 74 is projected into the low portion of the cam 78 and pin 80 is centered with respect to the axis of the rock shaft 60. The cam 78 in rotating, therefore, engages the projecting end of the slide member 74 and lifts said end upward causing the rock shaft to rotate in a counter-clockwise direction as seen in FIG. 8 whereby the transfer and discharge members secured to the rock shaft are raised.

Thereafter, when the high part of cam 78 moves beyond the projecting end of the slide 74 the rock shaft will rotate in a counter-clockwise direction due to the weight of the transfer and lifting members as they return to their lowered positions by gravity. The actuating lever 86 will then return to the full line position of FIG. 8 retracting the slide 74 so that the rock shaft will not again be oscillated until the actuating lever 86 is again operated. The slide 74 thus functions as an intermittently operating cam follower under the control of the actuating lever 86.

The actuating lever 86 is normally urged to its retracted full line position of FIG. 8 by a spring 88 so that the slide 74 is normally retracted from cam 78. However, the actuating lever is movable to the dotted line position to project the slide 74 by operation of a solenoid 90. The solenoid 90 is energized upon starting an operation by the closing of a micro switch 92 under the control of a timing means including a cam member 94 having a high point 96 engageable with the switch actuator 98 of the micro switch 92. The timing means further includes a cam member 100 having a high point 102 for closing micro switch 104 which serves to complete the circuit through solenoid 90 during continuing operation of the machine. The cam members 94 and 100 are advanced step by step in a counter-clockwise direction as seen in FIG. 8 by means of a pawl 106 engageable with the teeth on wheel 108 which serves to rotate the cam members. The pawl 106 is carried by an arm 110 that is engageable by pin 112 rotatable with shaft 48 associated with the ball orienting means 46 and the cam 78 which actuates the rock shaft 60 and the ball transfer and discharge means. Each rotation of the shaft 48 serves to advance the cams 94 and 100 of the timing means one step so that the mechanism serves to initiate the ball cleaning operation and to cause it to continue until each ball has been oriented ten or twelve times or as often as desired for assuring effective cleaning and polishing of the balls and transfer and discharge thereof.

The circuit including the micro switch 92 also includes a micro switch 114 which is controlled by a feeler element 116 positioned to be engaged by a ball being cleaned or polished. Thus, the feeler element 116 is arranged as shown in FIGS. 3, 4 and 5 so that it extends across the machine above the balls and will be held in a raised circuit breaking position as long as there is a ball in engagement with either the cleaning brush 18 or the polishing brush 20. When there is no ball in the machine, the feeler element 116 will fall to close the circuit including micro switches 92 and 114.

The circuit including the micro switch 92 and feeler controlled switch 114 serves to assure initial movement of the rock shaft 60 when a ball first enters the machine but this circuit is thereafter held open by the operation of feeler 116 and the opening of switch 114. Accordingly, the energizing of solenoid 90 and the operation of the rock shaft 60 when there is a ball in the machine is controlled by the micro switch 104 under the action of the cam member 100.

The operation of the machine may be initiated by any suitable means such as a push button, coin controlled means or the like. As shown, a coin controlled means indicated at 118 may be used. Moreover, since the ma-

chine is designed to receive one ball after another, the coin controlled means, if employed, may be of the "add and subtract" type so that a number of coins may be inserted to cause the machine to continue to operate through a corresponding number of cycles. When using an "add and subtract" coin controlled means of the type known as the "Guardian IR–R.A.S.," it is possible to use a rotatable contact element **120** designed to be advanced one step at a time by a solenoid **122** each time a coin **124** is inserted into the machine to close the contact **126**. The machine also is provided with an additional feeler element **128** positioned above the upper end of the discharge tracks **16** so as to be engaged and operated each time a ball is discharged from the machine. Feeler element **128** serves to actuate a micro switch **130** which is connected in series with a solenoid **132** to rotate the element **120** one step backward each time a ball is discharged. The micro switch **130** therefore serves to limit the number of cycles of operation to be performed by the machine to that correpsonding to the number of coins inserted into the machine.

In using that form of the invention shown and described above, the bowling balls **8** to be cleaned are placed upon the supply tracks **10** along which they roll through the opening **6** in the end wall **4** of the machine until the foremost ball engages the control arm **50** of the control device which extends across the end of the supply track **10** adjacent the cleaning brush **18**.

When a ball is to be cleaned, the coin controlled device **118** or other means is actuated to initiate the operation. Thus, as shown in FIG. 10, the insertion of a coin **124** into the coin controlled device **118** serves to close the contact **126** whereby a circuit is completed from the positive side of the power supply **134** through the line **136** and switch **126** to the solenoid **122** and thence back to the negative side of the power supply through the line **138**. The energizing of solenoid **122** serves to rotate the contact element **120** one step in a counter-clockwise direction as shown in FIG. 10. When a circuit is completed through the rotatable contact member **120**, current flows from the power supply **134** and line **136** through the contact member **120** to the line **140** and thence to relay **142** and back to the negative side of the power supply **134**. The relay **142** when energized serves to close the motor control switch **144** to cause the motor **24** to be driven. The brushes **18** and **20** are thus rotated and when they have attained the desired speed for cleaning and polishing the balls, the high point **96** of the cam member **94** will engage the switch actuator **98** of the micro switch **92**. At this time, since there is no ball in the machine, the feeler **116** will be lowered and switch **114** will be closed. Accordingly, current will flow from the positive side of power supply **134** through line **136** and switches **92** and **114** to solenoid **90** and back through line **138** to the negative side of the power source. Therefore, solenoid **90** will be energized to operate the actuating lever **86** and cause the rock shaft **60** to be tilted.

When the rock shaft tilts, the transfer member **62** and the discharge member **64** will be raised but this will be an idle operation since there are no balls in the machine. However, the movement of the rock shaft also serves to withdraw the stop member **58** from the notch **56** in cloverleaf **54** so that the shaft **52** and control arms **50** are released for rotation. Therefore, the foremost ball on the supply tracks **10** will roll forward into engagement with the cleaning brush **18** and the retarding sleeve **28**. At the same time, the feeler **116** will be raised to open switch **114** with the result that the subsequent operation of the rock shaft **60** will be controlled by the cam member **100** and micro switch **104** through which current flows to solenoid **90** each time the cam member **100** makes a complete rotation.

As indicated above, the ball being cleaned is rotated by the cleaning brush but is retarded in its rotation by the retarding sleeves **28** and the speed limiting device **46**. At the same time, the tilting members **46** will serve to lift and orient the ball being cleaned so as to assure effective cleaning of the entire surface of the ball.

After a predetermined number of such lifting and orienting movements of the ball being cleaned, the high point **102** on cam member **100** will engage the micro switch **104**. Solenoid **90** will then again be actuated to move the actuating lever **86** to its dotted line position permitting the control arms **50** and shaft **52** to rotate through a further angle of 90°. During such rotation, the transfer member **62** is lifted beneath the ball engaging the cleaning brush **18** and serves to shift the ball transversely of the machine into engagement with the polishing brush **20**. At the same time, the next ball will be moved forward by a control arm **50** into engagement with the cleaning brush **18**. The machine will then continue to operate so as to polish the first ball which is now in engagement with the polishing brush **20** and at the same time to clean the next ball which is then in engagement with the cleaning brush **18**. Upon conclusion of this cycle of operation, the solenoid **90** is again energized as the high point **102** of cam **100** again engages micro switch **104**. The actuating lever **86** then moves to cause the rock shaft **60** to oscillate whereby the discharge member **64** will raise the ball from engagement with the polishing brush **20** onto the upper end of the discharge tracks **16** so that it will roll out of the machine through the discharge opening **14** in the end wall **12**. At the same time, the ball which was in engagement with the cleaning brush will be transferred to the polishing brush **20** and another ball will be advanced into engagement with the cleaning brush **18**.

Each time a cleaned and polished ball is discharged from the machine upon operation of the discharge member **64**, it engages the feeler **128** to close micro switch **130** and energize solenoid **132**. The latter solenoid serves to rotate the rotatable element **120** of the coin operated device in a clockwise direction and when the number of balls discharged equals the number of coins inserted in the machine, the clockwise rotation of element **120** will serve to break the circuit through motor control relay **142** so that the motor control switch **144** will open and the motor will be stopped concluding the operation.

It will be apparent that each time a coin is inserted in the device **118** to close switch **126**, the rotatable element **120** will be advanced one step whereas each time a ball is discharged, it will be moved back one step so that the machine will keep on operating as long as coins are supplied. Moreover, the coins may be inserted at any time while the machine is operating so that it is not necessary to wait till the machine has stopped or completed a cycle of operation before depositing another coin. Furthermore, the positions of the high points on the cam members **94** and **100** are arranged so that stopping of the motor after final operation of cam member **100** will serve to position cam member **94** in readiness for renewed operation of the machine as soon as brushes **18** and **20** have attained the desired speed.

In any event, whether using coin controlled means or other control elements for initiating and terminating operation of the machine, the cycle of operation will be the same.

Although the invention has been shown and described with particular reference to coin controlled constructions and to equipment which cleans and polishes bowling balls, it will be apparent that the machine may be used for simply cleaning or simply polishing balls and may be controlled by any suitable elements. In view thereof, it should be understood that the particular embodiment of the invention chosen for purposes of illustration in the drawings and described above is intended to be representative and is not intended to limit the scope of the invention.

I claim:

1. A machine for cleaning and polishing bowling balls comprising inclined supply tracks for directing balls into the machine, inclined discharge tracks for directing balls away from the machine, a cleaning brush located adjacent the lower end of the supply tracks, a polishing brush located adjacent the upper end of the discharge tracks, said cleaning and polishing brushes being rotatable about a common axis, means for rotating said brushes, rotatable means positioned adjacent said brushes and cooperating therewith to support the balls while they are being cleaned and polished, means engagable with the balls for orienting the balls relative to said brushes while they are being cleaned and polished, means controlling the movement of a ball from said supply tracks to said cleaning brush, means for transferring a ball from the cleaning brush in a direction parallel to said common axis of the brushes to the polishing brush, and means for moving a ball from said polishing brush to said discharge tracks.

2. A machine for cleaning and polishing bowling balls comprising inclined supply tracks for directing balls into the machine, inclined discharge tracks for directing balls away from the machine, a cleaning brush located adjacent the lower end of the supply tracks, a polishing brush located adjacent the upper end of the discharge tracks, means for rotating said brushes, rotatable means positioned adjacent said brushes and cooperating therewith to support the balls while they are being cleaned and polished, means for limiting the speed of rotation of said rotatable means, means engageable with the balls for orienting the balls relative to said brushes while they are being cleaned and polished, ball advancing means for effecting the movement of a ball from said supply tracks to a position in which it will engage said cleaning brush and for transferring a ball from the cleaning brush to a position in which it will engage the polishing brush and for moving a ball from said polishing brush to said discharge tracks, and timing mechanism controlling said ball advancing means to advance bowling balls step by step and one after another in spaced relation through said machine from said supply tracks to said discharge tracks.

3. A machine for cleaning and polishing bowling balls comprising inclined supply tracks for directing balls into the machine, inclined discharge tracks for directing balls away from the machine, a cleaning brush located adjacent and below the lower end of said supply tracks, a polishing brush located adjacent the upper end of said discharge tracks, control means movable to permit a ball to move by gravity from the lower end of the supply tracks into a position in engagement with the cleaning brush, means for transferring a ball from the cleaning brush to a position in engagement with said polishing brush, and means for moving a ball from the polishing brush to the upper end of said discharge tracks, and mechanism for simultaneously actuating all of said means to advance a plurality of bowling balls through said machine one after another and in spaced relation from said supply tracks to said discharge tracks.

4. In a machine for cleaning and polishing bowling balls, a cleaning brush, a polishing brush, a supply track directing balls to the cleaning brush, means for moving a ball from said cleaning brush to said polishing brush, a discharge track directing balls away from the polishing brush, a plurality of control elements positioned to prevent undesired movement of balls from the supply track to the cleaning brush, from the cleaning brush to the polishing brush and from the polishing brush to the discharge track, said control elements serving to hold the bowling balls in spaced relation with respect to each other, and means controlling movement of said control elements.

5. In a machine for cleaning and polishing bowling balls, a cleaning brush of a generally conical form, a polishing brush of a generally conical form, said brushes being arranged in substantially axial alignment with the smaller ends thereof adjacent, means for rotating said brushes about the axes thereof, and means for moving a ball parallel to said axes from the cleaning brush to the polishing brush.

6. In a machine for cleaning a bowling ball, a brush of generally conical form, means for supporting a ball to be cleaned in engagement with the conical side of said brush, means for rotating the brush about its axis, and means for periodically moving said ball toward the larger end of the brush whereby the ball will be oriented with respect to the brush.

7. A machine for cleaning and polishing bowling balls comprising a track along which balls are movable into position to be cleaned, a cleaning brush of generally conical form positioned adjacent the end of said track, means for moving one ball at a time from said track into engagement with the conical surface of said brush, means for rotating said brush about the axis thereof, means for moving a ball engaging said brush toward and away from the larger end of the brush to orient the ball during brushing, polishing means for balls, means for moving a ball from the cleaning brush past the smaller end thereof to said polishing means, a discharge track and means for moving a ball from the polishing means to said discharge track.

8. In a machine for cleaning bowling balls, a supply track along which balls are movable into the machine, rotatable cleaning means in the machine, a motor for rotating said cleaning means, a discharge track along which balls are movable from the machine, control means operable to admit one ball at a time to the machine from the supply track and to discharge one ball at a time from the machine to said discharge track, electrical means including a rotatable element movable in one direction to initiate operation of said motor and cleaning means, cam actuated means driven by said motor and operable after the motor and cleaning means have attained a desired speed for rendering said control means operable, and means responsive to discharge of a ball from the machine for moving said rotatable element in the opposite direction to terminate operation of the motor.

9. A machine for cleaning and polishing bowling balls comprising an inclined supply track along which balls are movable into the machine, an inclined discharge track along which balls are movable out of the machine, a cleaning brush located adjacent and below the lower end of the supply track, control means movable to permit one ball at a time to pass from said supply track to said cleaning brush, a polishing brush located adjacent the upper end of said discharge track, transfer means located beneath a ball engaging said cleaning brush and movable upward to transfer a ball from the cleaning brush to the polishing brush, discharge means located beneath a ball engaging the polishing brush and movable upward to transfer a ball from said polishing brush to said discharge track, and mechanism for simultaneously actuating said control means, said transfer means and said discharge means to advance balls through said machine one at a time and from one position to another.

10. A machine for cleaning and polishing bowling balls comprising an inclined supply track along which balls are movable into the machine, an inclined discharge track along which balls are movable out of the machine, a cleaning brush located adjacent the lower end of the supply track, control means movable to permit one ball at a time to pass from said supply track to said cleaning brush, a polishing brush located adjacent the upper end of said discharge track, transfer means located adjacent a ball engaging said cleaning brush and movable to transfer a ball from the cleaning brush to the polishing brush, discharge means located adjacent a ball engaging the

polishing brush and movable to transfer a ball from said polishing brush to said discharge track, and mechanism for simultaneously actuating said control means, said transfer means and said discharge means to advance balls through said machine one at a time and from one position to another.

References Cited in the file of this patent

UNITED STATES PATENTS

1,876,851	Burg	Sept. 13, 1932
2,226,872	Passow	Dec. 31, 1940
2,528,341	Creely	Oct. 31, 1950
2,572,464	Freitas	Oct. 23, 1951
2,619,662	Hayes et al.	Dec. 2, 1952
2,733,464	Mieux	Feb. 7, 1956
2,814,813	Young	Dec. 3, 1957
2,831,205	Ernst	Apr. 22, 1958
2,880,432	Schnider et al.	Apr. 7, 1959