June 29, 1965 R. P. STANDISH 3,191,801

BALLOON VENDING MACHINE

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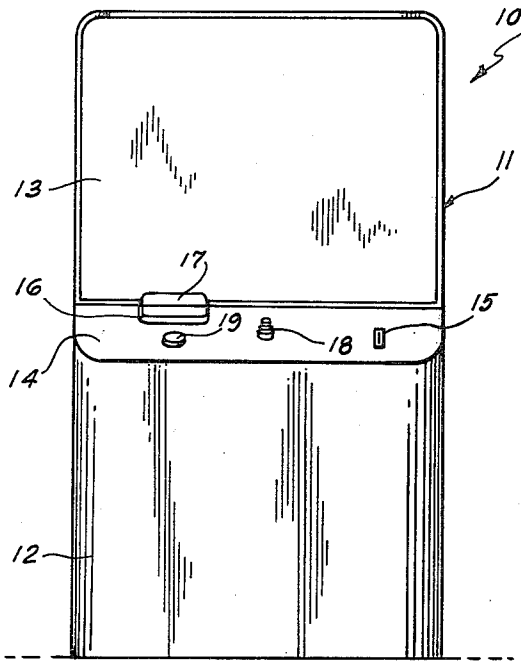


Fig. 1.

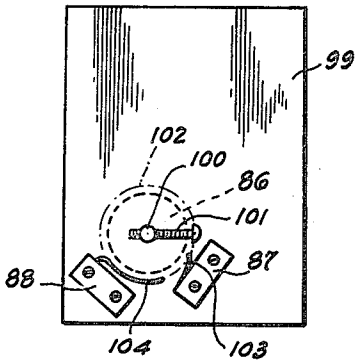


Fig. 4.

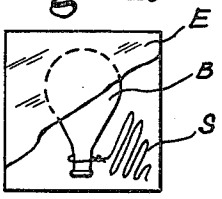


Fig. 6.

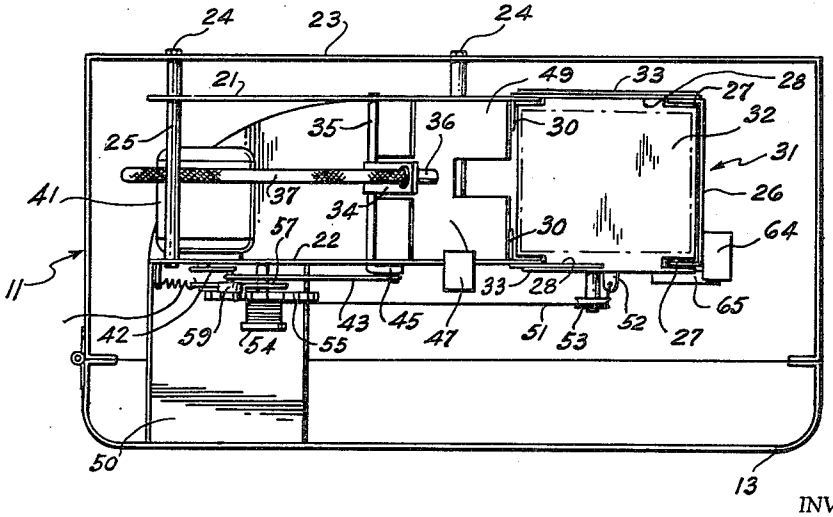


Fig. 3.

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BALLOON VENDING MACHINE

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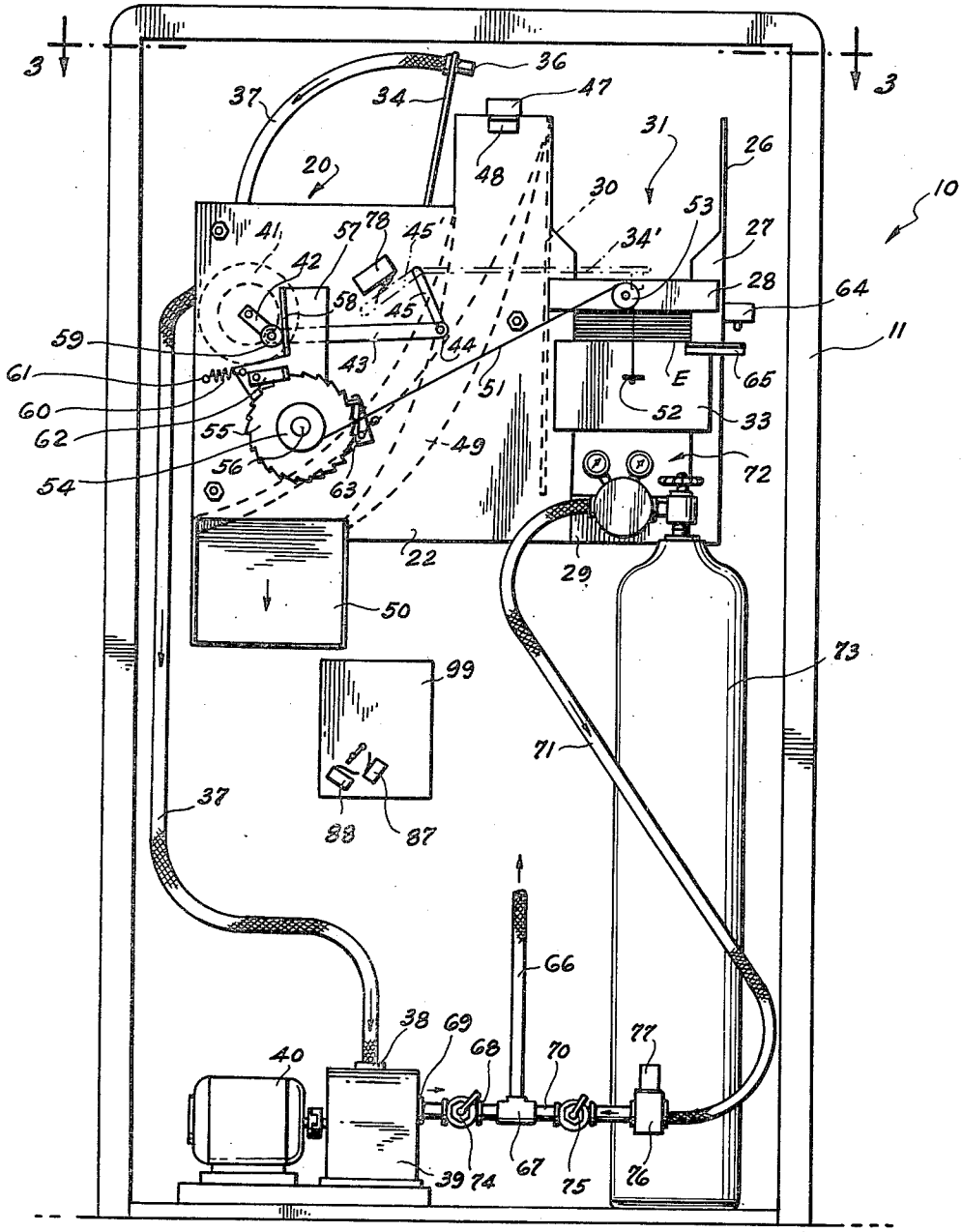


Fig. 2.

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June 29, 1965 R. P. STANDISH 3,191,801

BALLOON VENDING MACHINE

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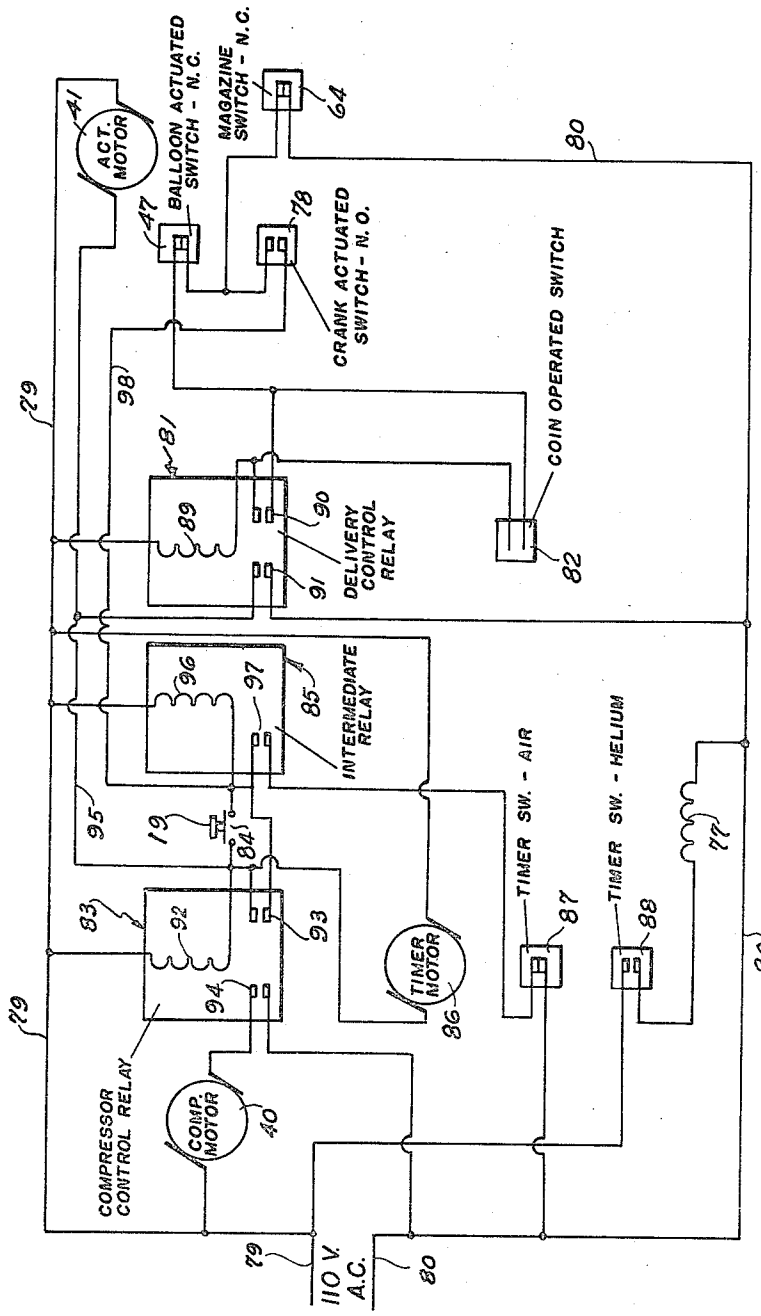


Fig. 5.

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United States Patent Office 3,191,801 Patented June 29, 1965

3,191,801
BALLOON VENDING MACHINE

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Filed Aug. 15, 1963, Ser. No. 302,246
8 Claims. (Cl. 221—14)

This invention relates generally to a vending machine for dispensing and inflating toy balloons.

An object of this invention is to provide a machine which, in response to the closing of a switch preferably by the deposit of a coin, operates to remove a balloon from a supply thereof in a magazine within a cabinet and to feed or discharge such balloon to the exterior of the cabinet, and, following such discharge, is operative to inflate the balloon, preferably with a mixture of air and helium so that the balloon will be buoyant in the atmosphere.

Another object is to provide a balloon vending machine in which the system thereof for inflating a balloon is operable only after a balloon has been fed or discharged from the magazine, thereby to avoid waste of the inflating fluid, particularly when the latter is made up, at least in part, of relatively costly helium.

A further object is to provide a machine for vending or dispensing toy balloons and inflating the same, which machine is relatively simple in construction and operation thereby to minimize operating difficulties and to reduce the initial and servicing costs thereof.

In accordance with an aspect of the invention, a machine of the described character includes a suction nozzle connected to the inlet or suction side of an air compressor and being movable with a pick-up arm to engage a toy balloon and remove the same from a supply in a magazine within a cabinet, whereupon the operation of the air compressor is interrupted to release the balloon from the nozzle and permit the discharge thereof, for example, by way of a chute, to the exterior of the cabinet, whereupon the balloon is engaged with an inflating nozzle connected with the outlet or pressure side of the compressor which is again rendered operative to inflate the balloon.

In a preferred embodiment of the invention, air under pressure fed from the outlet of the compressor to the inflating nozzle is mixed with helium or other lighter than air gas from a tank or other supply thereof so that the inflated balloon will be buoyant in the atmosphere, and the supplying of helium from the tank is interrupted during a final increment of each inflating cycle of operation so that the conduit means by which the inflating mixture is conveyed to the inflating nozzle is purged of helium at the conclusion of each inflating cycle, thereby to avoid any loss of the relatively costly helium.

The above, and other objects, features and advantages of this invention, will be apparent in the following detailed description of an illustrative embodiment thereof which is to be read in connection with the accompanying drawings forming a part hereof, and wherein:

FIG. 1 is a front elevational view of a balloon vending machine embodying this invention;

FIG. 2 is an enlarged front elevational view of the machine of FIG. 1, but with the front of the cabinet thereof removed so as to expose the essential components of the machine;

FIG. 3 is a horizontal sectional view taken along the line 3—3 on FIG. 2;

FIG. 4 is an enlarged front elevational view of a control box forming part of the machine;

FIG. 5 is a wiring diagram of the electrical circuits and components for controlling the operation of the balloon vending machine; and

FIG. 6 is a view, partly broken away, of a balloon containing envelope or package of the type which may be vended by the machine embodying the invention.

Referring to the drawings in detail, and initially to FIG. 1 thereof, it will be seen that a balloon vending machine embodying this invention and there generally identified by the reference numeral **10**, comprises an upright cabinet **11** having a hinged door **12** at the front thereof which may be opened to permit ready access to the interior components of the machine. The door **12** has an upper transparent or translucent portion **13** that may be back illuminated by suitable light sources (not shown), and is intended to carry a sign or other advertising material. The lower portion of door **12** project forwardly and, at its top, defines an inclined surface or counter **14**. Mounted on the counter **14** are a coin slot **15** for receiving coins to initiate the operation of the machine, a rim **16** for retaining a package containing a toy balloon when the latter is discharged onto the surface **14** through a discharge slot **17**, a nozzle **18** on which the dispensed toy balloon may be placed for inflating the same, and a pushbutton **19** which may be manually depressed to initiate the inflating cycle of the machine, as hereinafter described in detail.

Referring now to FIGS. 2 and 3, it will be seen that, within the upper portion of the cabinet **11**, the machine **10** has a frame **20** made up of a back plate **21** and a front plate **22** extending laterally across the cabinet in spaced apart vertical planes and being secured to each other and to the back wall **23** of the cabinet, for example, by bolts **24** having tubular spacers **25** thereon between the frame plates **21** and **22**.

The frame **20** further includes a side wall **26** having flanges **27** extending at right angles thereto along the front and back edges. Top and bottom straps **28** and **29** (FIG. 2) are welded or otherwise secured to flanges **27** and to the adjacent side edge portions of frame plates **21** and **22** for supporting the side wall **26** in spaced apart, parallel relationship to such adjacent side edge portions of the frame plates. Vertical flanges **30** project toward each other from frame plates **21** and **22** along the side edges of the latter adjacent side wall **26** and cooperate with such side edge portions of the frame plates and with side wall **26** and flanges **27** in defining a magazine **31** for receiving a supply of the toy balloons to be vended.

As shown on FIG. 6, each of the ballons B to be dispensed by machine **10** may be contained in a paper envelope E which is easily torn open to permit the removal of the balloon. The bag or envelope E further preferably contains a string S having a noose at one end extending loosely about the neck of the balloon and which may be tightened after inflation of the latter so as to prevent the escape of the inflating gas or fluid therefrom. The envelopes E are dimensioned so as to be guided in a vertical stack by the described structure of magazine **31**, and the latter further includes a platform **32** for supporting the stack of envelopes within the magazine. The platform **32** is moved vertically upward as envelopes are removed from the stack, as hereinafter described in detail, so as to substantially maintain the top of the latter at a predetermined level. The platform **32** is guided vertically within magazine **31** by depending front and back flanges **33** riding against the outer surfaces of flanges **27** and the adjacent side edge portions of plates **21** and **22** and being joined to the platform **32** by connections of reduced width, as shown on FIG. 3.

In order to effect removal of the balloon containing envelopes E one at a time from the top of the stack thereof in magazine **31** and to discharge the successively removed envelopes through the slot **17**, the machine **10** further has a pick-up arm **34** extending radially from,

and secured to a shaft 35 which is suitably journalled, adjacent its opposite ends, in frame plates 21 and 22 so that, in response to oscillation of the shaft 35, arm 34 swings in a vertical plane intermediate from plates 21 and 22 between a substantially erect position shown in full lines on FIG. 2 and a substantially horizontal or pick-up position represented in broken lines at 34' on FIG. 2. When in the pick-up position, the free end of arm 34 projects substantially into the middle of magazine 31. A suction nozzle 36 is suitably mounted adjacent the free end of swingable arm 34 and is connected by a flexible hose 37 with the inlet or suction side 38 of an air compressor 39 driven by an electric motor 40 so that, during operation of the motor 40, suction is created at the nozzle 36. It will be apparent that, when the swingable arm 34 is moved to its pick-up position 34' during operation of the motor 40 and the nozzle 36 comes in contact with the envelope E at the top of the stack maintained in magazine 31, the suction created at the nozzle causes the top envelope to adhere to the nozzle and to be carried away with the latter during return swinging movement of arm 34 to its substantially erect position.

The swinging movements of arm 34 are effected by an electric actuating motor 41 mounted in back of frame plate 22 and having its shaft projecting through the latter and carrying a crank arm 42. A link 43 is pivotally connected at one end, to crank arm 42 and has its other end pivotally connected, as at 44, to a crank arm 45 formed as an extension of the forward end of shaft 35. The crank arms 42 and 45 are respectively dimensioned so that, upon rotation of crank arm 42 with the shaft of motor 41 during operation of the latter, the crank arm 45 is oscillated between the position shown in full lines on FIG. 2, where the arm 34 is disposed in its substantially upright position, and the position indicated in broken lines at 45' to dispose the nozzle carrying arm in its pick-up position 34'.

The compressor motor 40 and the actuating motor 41 are controlled, as hereinafter described in detail, so that, upon the deposit of a coin in slot 15, both motors are operated to create a suction at nozzle 36 while arm 34 is oscillated between its upright and pick-up positions. When arm 34 returns to its upright position with a balloon containing envelope E adhered to the nozzle 36, such envelope engages an actuating finger 46 (FIG. 3) of a normally closed switch 47 mounted on a bracket 48 (FIG. 2) at the top of the front frame plate 22, thereby to momentarily open the contacts of switch 47 for halting the operation of both motors 40 and 41, as hereinafter described in detail. Thus, upon the return of arm 34 to its upright position with a bag removed from the top of the stack in magazine 31, the suction at nozzle 36 is relieved or interrupted to release the bag or enevlope E for travel, under the influence of gravity, along a chute assembly 49 which extends downwardly from below the location of nozzle 36 and communicates with a trough 50 directed forwardly from front frame plate 22 and terminating in back of discharge slot 17. The balloon containing envelope is thereby delivered onto the area of counter 14 within retaining rim 16.

In order to effect vertically upward movement of platform 32 of magazine 31 and thereby maintain the top of the stack of envelopes E at a substantially constant level so that the nozzle 36 can engage the top envelope when arm 34 is moved to its pick-up position 34', a cable or flexible wire 51 has one end anchored or secured to a tab or lug 52 struck from the front flange 33 of platform 32. The cable 51 extends upwardly from the platform and runs over a pulley 53 which is rotatably mounted on the front strap 28. The cable 51 further is wound on a drum 54 which is coupled to a ratchet wheel 55 and rotatable with the latter on an axle 56 projecting forwardly from frame plate 22. An upwardly directed pawl lever 57 is rockably mounted on axle 56 in back of ratchet wheel 55 and has one of its longitudinal edges

formed with a forwardly directed flange 58 engageable by a roller 59 rotatably carried by the crank arm 42. A spring 60 is connected between pawl lever 57 and an anchor pin 61 extending from frame plate 22 and yieldably urges the pawl lever to rock in the direction maintaining contact of flange 58 with roller 59, that is, in the counterclockwise direction, as viewed on FIG. 2. It will be apparent that operation of motor 41 causes rocking of lever 57. A pawl 62 is pivotally carried by lever 57 and is gravitationally urged into engagement with the toothed periphery of ratchet wheel 55 so that, upon rocking of lever 57 in the clockwise direction, as viewed on FIG. 2, ratchet wheel 55 is turned in the clockwise direction through a predetermined angle to wind the cable 51 on drum 54 and thereby elevate platform 32 of magazine 31. A locking pawl 63 is pivotally carried by frame plate 22 and urged by a torsional spring into engagement with the toothed periphery of ratchet wheel 55 to resist return or counter-clockwise turning of the ratchet wheel during rocking of lever 57 in the counter-clockwise direction by spring 60. Thus, during each revolution of the shaft of motor 41, the platform 32 of the magazine rises a predetermined distance to bring the uppermost envelope of the stack to a level at which such envelope can adhere to the nozzle 36 by reason of the suction created in the latter.

A switch 64 having normally closed contacts is mounted on the side wall 26 of the magazine and has an actuating finger or plunger engageable by an arm 65 which projects from the front flange 33 of platform 32 thereby to open the contacts of switch 64 and prevent operation of the machine 10, as hereinafter described in detail, when the supply of balloon containing envelopes in magazine 31 has been exhausted.

In order to provide for inflation of a ballon after the latter has been removed from the envelope discharge through slot 17 and placed upon the inflating nozzle 18, a flexible hose 66 (FIG. 2) extends from such inflating nozzle to a branched connection 67 which communicates through a conduit 68 which the outlet or pressure side 69 of compressor 39 and through a conduit 70 and a flexible hose 71 with the usual outlet assembly 72 at the top of a tank 73 removably installed in cabinet 11 and containing helium or other lighter than air gas under pressure. The outlet assembly 72 of tank 73, which is commercially available with the latter from suppliers of helium, may include a pressure regulator and gauges for indicating the pressure and quantity of the gas remaining in the associated tank. The branch conduit 68 and 70 preferably have normally open, manually actuable shut-off valves 74 and 75 interposed therein, and a valve 76 normally spring urged to its closed condition is interposed between flexible hose 71 and conduit 70 and is adapted to be opened by energization of an associated solenoid 77 so that helium under pressure is fed from tank 73 for mixture in hose 66 with compressed air from compressor 39 only when solenoid 77 is energized.

In accordance with this invention, the control system of the machine 10 is constructed and organized so that the solenoid 77 of valve 76 can be energized to open the latter and permit the discharge of helium along with compressed air at the inflating nozzle 18 only after the balloon vending machine has undergone the above described sequence of operations necessary for the dispensing or discharge of a balloon containing envelope at the slot 17. As hereinafter described in detail, the electrical circuitry for effecting operation of compressor motor 40 and for energizing solenoid 77 in response to depression of the button 19 includes a normally open switch 78 (FIG. 2). The switch 78 is mounted on the front frame plate 22 and has an actuating finger engageable by the crank arm 45 when the latter is oscillated to the position 45' thereby to close the contacts of switch 78 and condition the electrical circuitry for operation in response to depression of push-button 19 only after arm 34 has

been oscillated by operation of actuating motor 41 to pick-up a balloon from magazine 31.

Referring now to FIG. 5, it will be seen that the electrical circuitry for controlling the operation of the machine 10 generally includes current supply lines 79 and 80; a relay 81 for controlling the operation of the actuating motor 41 during the balloon dispensing or discharging cycle, which cycle is initiated by closing of a coin controlled switch 82 and terminated by opening of the normally closed contacts of the switch 47; a relay 83 which is energized through the relay 81 to cause operation of the compressor motor 40 during the balloon dispensing cycle and thereafter energized to again cause operation of the compressor motor during the inflating cycle, with the latter cycle being initiated in response to closing of a switch 84 by depression of the button 19; an intermediate relay 85 which is energized in response to closing of the normally open contacts of switch 78 during the balloon dispensing cycle and which prevents initiation of the inflating cycle prior to the dispensing cycle; and a timer motor 86 operated in response to simultaneous energization of the relays 83 and 85 and which controls the opening of a normally closed timer switch 87 to terminate the inflating cycle and the closing of a normally open switch 88 interposed in the energizing circuit of the solenoid 77 of valve 76, thereby to regulate the period within the inflating cycle during which helium is passed through valve 76 for mixture with air from compressor 40.

Relay 81 includes a coil 89 and two sets of normally open contacts 90 and 91. Actuating motor 41 is connected, at one side, to line 79 and, at its other side, to line 80 through contacts 91. Coil 89 of relay 81 is connected, at one side, to line 79 and, at its other side, through contacts 90, switch 47 and switch 64 to lines 80. Further, the coin operated switch 82 is connected across contacts 90 of relay 81. Thus, when a coin is deposited in slot 15 and causes closing of switch 82, coil 89 of relay 81 is energized unless the contacts of switch 64 have been opened in response to the exhaustion of the supply of balloons in magazine 31. Energizing of coil 89 causes closing of contacts 90 and 91. The closed contacts 90 act as hold contacts to maintain the energization of coil 89 until the contacts of switch 47 are opened in response to the return of arm 34 to its erect position with a balloon containing envelope adhered to the nozzle 36. So long as contacts 91 are closed, actuating motor 41 continues to operate. However, upon opening of the contacts of switch 47, the energizing circuit of coil 89 is interrupted, thereby releasing hold contacts 90 and contacts 91 for interrupting operation of motor 41.

Relay 83 includes a coil 92 and normally open contacts 93 and 94. The coil 92 is connected, at one side, to line 79 and, at its other side, by way of a conductor 95 and contacts 91 of relay 81 to the line 80. Compressor motor 40 is connected, at one side, to line 79, and, at its other side, to line 80 through contacts 94 of relay 83. Thus, during the balloon dispensing cycle, at which time relay 81 is energized to close its contacts 91, coil 92 of relay 83 is also energized to close its contacts 94 and thereby cause operation of compressor motor 40 for applying suction to the nozzle 36.

The intermediate relay 85 includes a coil 96 and a single set of normally open contacts 97. One side of coil 96 is connected to line 79, while the other side of coil 96 is connected through normally open contacts 97 and the normally closed contacts of timer switch 87 to line 80. The side of coil 96 connected to contacts 97 is further connected to line 80 through conductor 98, the normally open contacts of switch 78 and the normally closed contacts of switch 64. Thus, when switch 78 is closed in response to actuation by crank arm 45 during the balloon dispensing cycle, coil 96 of relay 85 is energized to close its contacts 97 which thereafter maintain energization of relay 85 until the contacts of timer switch 87 are open at the conclusion of the inflating cycle.

The side of coil 92 of relay 83 remote from line 79 is further connected through parallel paths by way of push-button operated switch 84 and by way of contacts 93 of relay 83, respectively, and then through contacts 97 of relay 85 and switch 87 to the line 80. Finally, the timer motor 86 is connected, at one side, to line 79 and, at its other side, through contacts 93 of relay 83, contacts 97 of relay 85 and the contacts of timer switch 87 to line 80.

It will be apparent that so long as switch 78 remains open, that is, before the balloon dispensing cycle of the machine, relay 85 remains deenergized and its contacts 97 are open, thereby to prevent energization of the timer motor 86 and also to prevent energization of the relay 83 by closing of the push-button switch 84. However, after switch 78 has been closed during the balloon dispensing cycle of the machine to initiate energization of coil 96 of relay 85, the energization of coil 96 is maintained through the closed contacts 97. Thereafter, closing of push-button switch 84 completes the energizing circuit for coil 92 of relay 83 and closing of contacts 93 is effective to maintain the energized condition of relay 83 until timer switch 87 is opened at the conclusion of the inflating cycle. The closing of relay contacts 93 further causes energization of the timer motor 86, while the closing of relay contacts 94 causes energization of compressor motor 40 so that the compressor 39 remains operative to supply compressed air to the inflating nozzle 18 throughout the inflating cycle.

As shown on FIG. 4, the timer motor 86 is mounted in a control box 99 which may also contain the relays 81, 83 and 85, and which is suitably supported within cabinet 11 (FIG. 2). The shaft 100 of timer motor 86 has a diametrical, threaded bore through which an actuating screw 101 is adjustably extended. Thus, upon operation of timer motor 86, the head of actuating screw 101 moves along an orbital path represented by the broken line 102 on FIG. 4, for example, in the counter-clockwise direction as viewed on the drawing. The normally closed timer switch 87 is mounted adjacent the path 102 and has an actuating finger 103 projecting into the path 102 for engagement by the head of screw 101, thereby to open the contacts of switch 87. Assuming that the screw 101 is initially in the position shown on FIG. 4 upon initiation of the inflating cycle, as described above, it will be apparent that near the end of a single revolution of screw 101 switch 87 will be opened, thereby to interrupt the energizing circuits of relays 83 and 85 and of timer motor 86. The resultant opening of contacts 94 of relay 83 halts the operation of compressor motor 40, thereby restoring the machine 10 to its initial or starting condition.

The normally open switch 88 interposed in the energizing circuit of the solenoid 77 of valve 76 is also mounted adjacent the orbital path 102, but in advance of the switch 87 considered in the direction of normal rotation of screw 101. The switch 88 has an actuating finger 104 which projects into the orbital path 102 along a substantial portion of the length thereof so as to be engaged by the head of screw 101, and thereby cause opening of the valve 76, for a portion of the inflating cycle which is represented by a single complete revolution of screw 101. It will be noted on FIG. 4 that screw 101 preferably rotates through a substantial angle from its illustrated starting position before engaging actuating finger 104 of switch 88 and disengages finger 104 prior to engagement with finger 103 of switch 87 for concluding the inflating cycle. Thus, the inflating cycle is preferably made up of an initial portion during which only compressed air is supplied through flexible tube 66 to nozzle 18, an intermediate portion during which both compressed air and helium are supplied to the nozzle through flexible tube 66 by reason of the opening of valve 76, and a concluding portion during which only compressed air is again

applied through flexible tube 66, thereby to purge all helium from the latter. By reason of the foregoing, upon the completion of the inflating cycle, no helium remains in tube 66 for wasteful escape to the atmosphere.

Although an illustrative embodiment of this invention has been described in detail herein with reference to the accompanying drawings, it is to be understood that the invention is not limited to that precise embodiment, and that various changes and modifications may be effected therein by one skilled in the art without departing from the scope or spirit of the invention, except as defined in the appended claims.

What is claimed is:

1. A balloon vending machine comprising:

(A) a cabinet having means therein defining a magazine for receiving a supply of balloons;

(B) dispensing means operative cyclically to remove a balloon from said magazine and to deliver the removed balloon to the exterior of said cabinet;

(C) inflating means for supplying a gaseous mixture of air and helium under pressure from sources thereof contained in said cabinet to a balloon delivered to the exterior of said cabinet; and

(D) control means for said inflating means including means actuated by said dispensing means and permitting operation of the inflating means only following operation of said dispensing means.

2. A balloon vending machine as in claim 1;

wherein said inflating means includes a supply conduit, an air compressor which constitutes said source of air under pressure having its outlet connected to said supply conduit and being operated for a predetermined period upon actuation of said control means, means connecting said source of helium with said supply conduit and having a normally closed valve therein, and means for opening said valve to permit discharge of helium from said source thereof through said supply conduit during a portion of said period of operation of the compressor, said portion of the period of operation concluding prior to the termination of said period so that, at the end of said period, all helium is purged from said supply conduit by compressed air flowing through the latter.

3. A balloon vending machine comprising:

(A) a cabinet having means therein defining a magazine for receiving a supply of balloons and a discharge opening;

(B) dispensing means operative cyclically to remove a balloon from said magazine and to deliver the removed balloon through said discharge opening;

(C) an inflating nozzle mounted on said cabinet at the exterior of the latter and adapted to be engaged by a delivered balloon;

(D) inflating means for supplying a gaseous mixture of air and helium under pressure from sources thereof within said cabinet to said nozzle for inflating a balloon engaged with the latter; and

(E) control means for said inflating means including means actuated by said dispensing means and permitting operation of the inflating means only following operation of said dispensing means.

4. A balloon vending machine as in claim 3;

wherein said inflating means includes a supply conduit extending to said inflating nozzle, an air compressor which constitutes said source of air under pressure having its outlet connected to said supply conduit and being operated for a predetermined period upon actuation of said control means, means connecting said source of helium with said supply conduit and having a normally closed valve therein, and means for opening said valve to permit discharge of helium from said source thereof through said supply conduit during a portion of said period of operation of the air compressor, said portion of the period of operation concluding prior to the termination of said period so that, at the end of said period, all helium is purged from said supply conduit by compressed air flowing through the latter.

5. A balloon vending machine comprising:

(A) a cabinet having means therein defining a magazine for receiving a supply of balloons and a discharge opening;

(B) dispensing means including a suction nozzle, means mounting said nozzle for movement between a pick-up position, where said suction nozzle is engageable with a balloon in said magazine, and a remote position, an actuating motor operable to move said suction nozzle between said pick-up and remote positions, an air compressor driven by a compressor motor and having an inlet and outlet, conduit means connecting said inlet with said suction nozzle to create a suction at the latter in response to operation of said compressor motor, and chute means extending to said discharge opening of the cabinet from a location below said remote position of the suction nozzle;

(C) control means for said dispensing means including circuit means for energizing said actuating motor and for energizing said compressor motor, starting switch means actuable to close said circuit means for the actuating and compressor motors so that said suction nozzle is moved between said remote and pick-up positions while suction is created at said nozzle to cause a balloon engaged by the latter to adhere to the suction nozzle and be carried thereby to said remote position, and shut-off switch means interrupting said circuit means for the actuating and compressor motors in response to return of said suction nozzle to said remote position with a balloon adhered thereto whereby the balloon is released for delivery along said chute means to said discharge opening of the cabinet;

(D) inflating means for the delivered balloon including an inflating nozzle at the exterior of said cabinet adapted to be engaged by the delivered balloon, a supply conduit extending to said inflating nozzle, means connecting the outlet of said compressor to said supply conduit, a source of helium under pressure, means connecting said source of helium with said supply conduit and having a normally closed valve therein, and a solenoid operative, when energized to open said valve; and

(E) control means for said inflating means including a control circuit for again closing said circuit means for the compressor motor and having a manually closable switch means and a normally open switch closed in response to movement of said suction nozzle between said remote and pick-up positions so that said control circuit can be closed only following operation of said dispensing means, an energizing circuit for said solenoid, and timer means operated in response to closing of said control circuit to permit operation of said compressor motor for a predetermined period and to cause closing of said energizing circuit for the solenoid for a portion of said period, so that a mixture of air and helium is transmitted through said supply conduit to said inflating nozzle for inflating the delivered balloon engaged with the latter.

6. A balloon vending machine as in claim 5;

wherein said timer means includes a timer motor energized through said control circuit and driving a switch actuator, a first, normally closed timer switch interposed in said control circuit and opened by said switch actuator at the conclusion of said predetermined period, and a second, normally open timer switch interposed in said energizing circuit for the solenoid and closed by said switch actuator during said portion of the period.

7. A balloon vending machine as in claim 6;
wherein said switch actuator is movable along a closed path so as to effect a complete circuit of the latter in said predetermined period, said first timer switch has a finger projecting into said path for engagement by said actuator at a location adjacent an initial position of the actuator thereby to open said first timer switch at the conclusion of a complete circuit of said path by said actuator, and said second timer switch has a finger projecting into said path along a substantial portion of the latter in advance of said location and spaced from the latter so that said portion of the period terminates before the end of the latter to ensure that all helium is purged from said supply conduit.

8. In a balloon vending machine having an inflating nozzle adapted to be engaged by a balloon, the combination of a supply conduit extending to said nozzle, an air compressor having its outlet connected to said supply conduit, control means actuable to cause operation of said compressor for a predetermined period, a source of helium under pressure, means connecting said source of helium with said supply conduit and having a normally closed valve therein, and means for opening said valve to permit discharge of helium from said source through said supply conduit during a portion of said period of operation of the air compressor, said portion of the period of operation concluding prior to the termination of said period so that, during said period, a mixture of air and helium under pressure is supplied to said nozzle for inflating a balloon engaged with the latter and, at the end of said period, all helium is purged from said supply conduit by compressed air flowing through the latter.

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