F. R. CHESTER.

AMUSEMENT APPARATUS.

APPLICATION FILED AUG. 4, 1920.

1,405,282.

Patented Jan. 31, 1922.

2 SHEETS—SHEET 1.

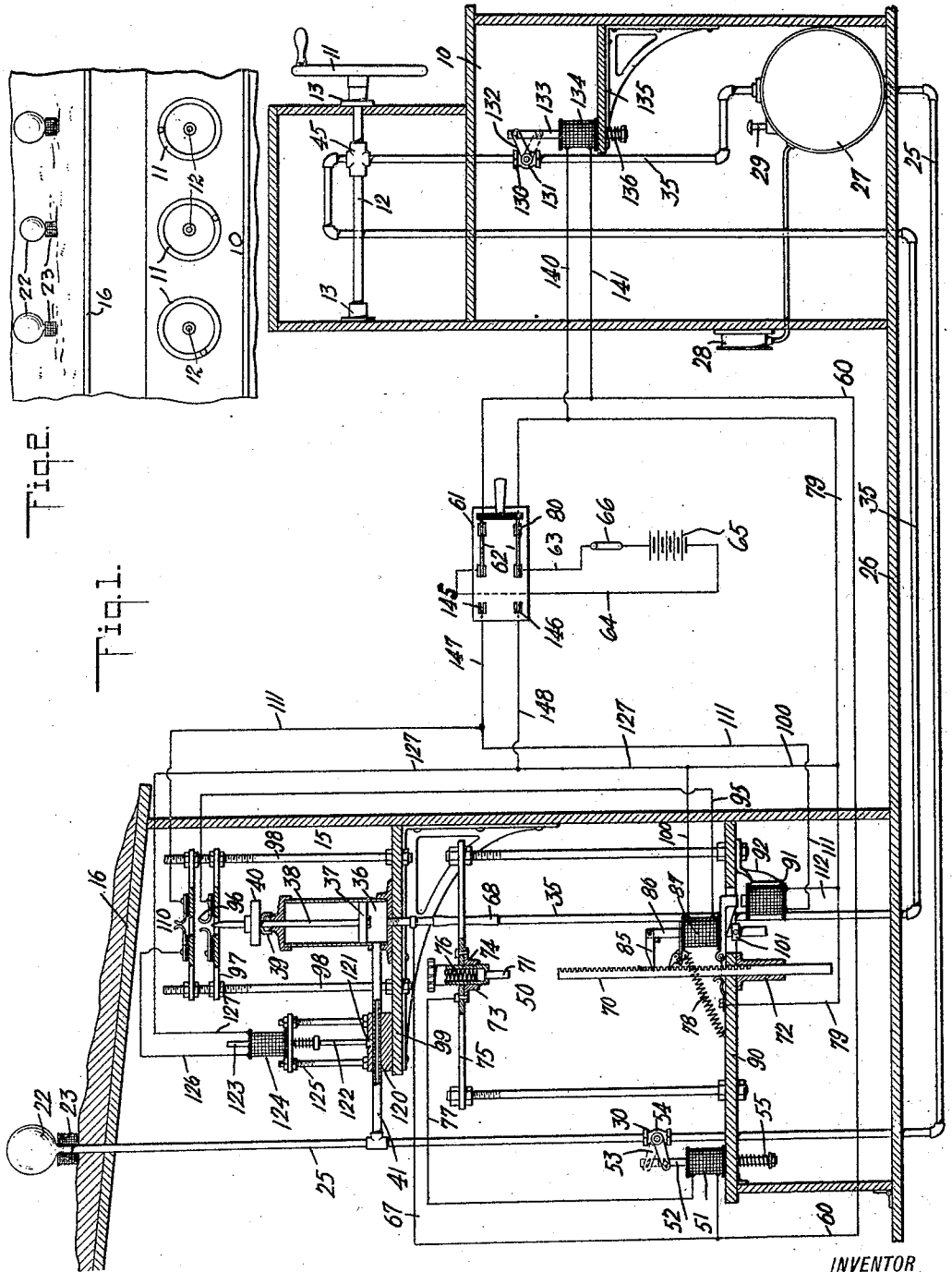


Fig. 2.

Fig. 1.

WITNESSES

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2 SHEETS—SHEET 2.

Fig. 3.

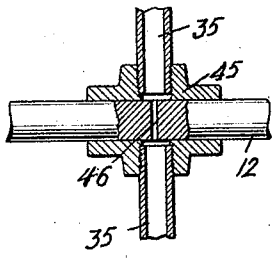


Fig. 4.

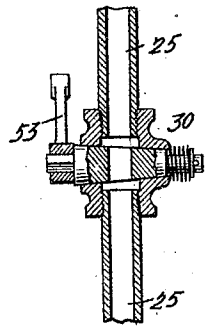


Fig. 5.

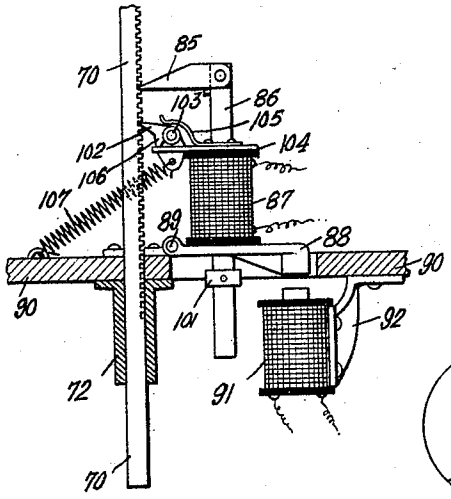


Fig. 6.

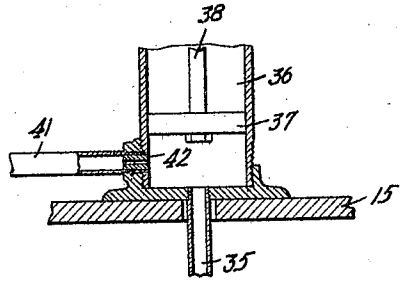
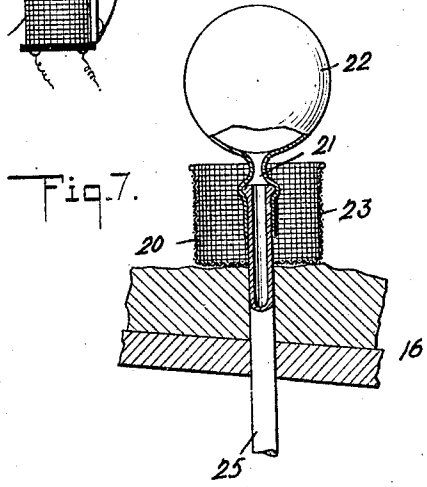


Fig. 7.



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UNITED STATES PATENT OFFICE.

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AMUSEMENT APPARATUS.

1,405,282. Specification of Letters Patent. Patented Jan. 31, 1922.

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To all whom it may concern:

Be it known that I, FRANK R. CHESTER, a citizen of the United States, and a resident of Asbury Park, in the county of Monmouth and State of New Jersey, have invented a new and Improved Amusement Apparatus, of which the following is a full, clear, and exact description.

The invention relates to amusement apparatus such as shown and described in the application for Letters Patent of the United States, No. 362,761, filed by me June 9, 1920.

The object of the invention is to provide a new and improved amusement apparatus for use in pleasure resorts, exhibition grounds, fairs and other places of amusement, and arranged to enable a number of players to participate at the same time and with an equal chance to all the players to successfully play the game in the shortest time.

Another object is to provide a rather unexpected, startling effect at the end of each play.

With these and other objects in view, the invention consists of certain novel features of construction as hereinafter shown and described and then specifically pointed out in the claims.

A practical embodiment of the invention is represented in the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a cross section of the improved amusement apparatus;

Figure 2 is a fragmentary front elevation of the same;

Figure 3 is an enlarged sectional side elevation of the controlling means for controlling the flow of the fluid pressure from the fluid pressure reservoir to the pressure reducing means;

Figure 4 is an enlarged sectional side elevation of one of the fluid pressure controlling valves in open position;

Figure 5 is an enlarged sectional side elevation of the step by step governing device for the valve in the main line connecting the fluid pressure reservoir with a hollow fragile object;

Figure 6 is a sectional side elevation of the lower portion of the pressure reducing means; and

Figure 7 is an enlarged cross section of one of the toy balloons and its holder, parts being shown in elevation.

The players stand in front of a counter or stand 10 or a similar structure, and each of the players manipulates a hand wheel 11 secured to the front end of a shaft 12 journaled in suitable bearings 13 arranged on the upper portion of the counter 10, as plainly shown in Figure 1. In the rear of the counter or stand 10 and spaced from the same is arranged a support 15 provided with a rearwardly and upwardly sloping top 16 ornamented with a scenic effect to enhance the appearance of the game apparatus. On the top 16 are mounted holders 20 corresponding in number to the wheels 11 and disposed opposite the same, and each holder is adapted to receive the neck 21 of a hollow fragile object 22 such as an inflatable toy balloon adapted to be first inflated by reduced air pressure from within and to be finally bursted by a high air pressure, as hereinafter more fully explained. The holder 20 and the neck 21 of the hollow object 22 are preferably contained within a suitable guard 23 in the form of a basket containing the hollow object 22 when in deflated condition prior to the starting of the game.

The holder 20 forms the upper end of a main pressure supply pipe 25 extending downward within the support 15 and passing under the floor 26 to connect with a pressure supply reservoir 27, preferably charged with compressed air, say from about 80 to 100 lbs., the reservoir being preferably located in the lower portion of the counter or stand 10. The reservoir 11 is provided with a suitable pressure gage 28 to indicate the pressure contained therein, and the said reservoir 27 is also provided with a suitable automatic relief valve 29 for relieving the reservoir of excess pressure when charging the same. In the main pipe 25 is arranged a valve 30 normally disconnecting the reservoir 27 from the hollow object 22 and this valve is suddenly opened, as hereinafter more fully explained, to admit the high fluid pressure from the reservoir 27 into the object 22 to burst the same. Prior to the valve 30 being opened the object 22 is supplied with reduced fluid pressure from the reservoir 27 to the said object without, however, bursting it, and for this purpose the following arrangement is made: From the reservoir 27 leads a pipe 35 to the lower end of a pres-

sure reducing cylinder 36 mounted in the support 15 and containing a piston 37 provided with a piston rod 38 extending through a suitable stuffing box 39 held on the top of the cylinder 36. The piston rod 38 is provided at its outer portion with a weight 40 to normally hold the piston 37 in a lowermost position, the weight resting on the stuffing box 39. The lower end of the cylinder 36 is connected by a pipe 41 with the main pipe 25 at a point intermediate the valve 30 and the object 22. The pipe 41 is provided at its inlet with a reducing plug 42 (see Figure 6) having a small aperture or a bleed hole for the passage of air from the cylinder to the pipe 41 and to the object 22 to inflate the same with reduced pressure. The pipe 35 is provided at the stand 10 with a fixture 45 (see Figures 1 and 3) and through this fixture extends the shaft 12 of the hand wheel 11, and the shaft 12 is provided within the fixture 45 with a diametrical aperture 46 for reducing the air pressure passing through the pipe 35 from the reservoir 27 to the cylinder 36. It will be noticed that on a player turning the hand wheel 11 the shaft 12 is rotated and consequently the diametrical aperture 46 moves alternately into open and closed position relative to the pipe 35 to provide an intermittent flow of air pressure through the pipe 35. It will be noticed that on turning the hand wheel 11 too fast or too slow the up and down movement of the piston 37 in the cylinder 36 controls an electric switch 50 for a solenoid 51 mounted on the support 15 and having its core 52 connected with an arm 53 secured on the stem 54 of the valve 30 to suddenly open the said valve whenever the solenoid 51 is energized on closing the switch 50. A spring 55 normally holds the core 52 in lowermost and the valve 30 in closed position. The solenoid 51 is connected with a main circuit wire 60 connected with the binding post 61 of a cut-out switch 62 connected by line wires 63, 64 with a source of electrical energy 65, one of the line wires being provided with a main switch 66. The main circuit wire 60 is also connected by a wire 67 with the upper end of the pipe 35, which latter is provided adjacent the upper end with a section 68 of rubber or other insulating material. The switch 50 is provided with a movable member 70 and a yielding member 71, of which the movable member 70 is in the form of a rack and is mounted to slide up and down in a bearing 72 attached to the support 15. The yielding member 71 is slidable in a tubular carrier 73 screwing in a nut 74 attached to a bracket 75 held in the support 15. A spring 76 bears on the contact 71 to normally hold the latter in lowermost position. The bracket 75 is connected by a wire 77 with the solenoid 51. The movable switch member 70 is engaged by a spring contact 78 connecting a wire 79 with the companion binding post 80 of the binding post 61. Thus when the switch 62 is in closed position, as shown in Figure 1, and the switch member 70 moves into engagement with the switch member 71 then the circuit for the solenoid 51 is closed and hence the latter is energized to open the valve 30. When this takes place the full fluid pressure from the reservoir 27 passes into the object 22 to burst the same.

The movable switch member 70 is engaged by a pawl 85 arranged on the upper end of a core 86 of a solenoid 87 mounted on an arm 88 fulcrumed at 89 on a shelf 90 forming part of the support 15 (see Figures 1 and 5). The arm 88 forms an armature to be released by an electromagnet 91 supported by a bracket 92. The solenoid 87 is connected by a circuit wire 95 with a contact 96 held insulated on a bar 97 adjustably mounted on posts 98 attached to a bracket 99 secured within the support 15 (see Figure 1). The solenoid 87 is also connected by a wire 100 with the circuit wire 79. The contact 96 is in the path of the upper end of the piston rod 38 and hence when the piston 37 is lifted by air pressure in the lower end of the cylinder 36, until the upper end of the piston rod 38 moves into engagement with the contact 96, then the circuit for the solenoid 87 is closed and the core 86 thereof is moved upward thus lifting the switch member 70. On the reduction of pressure in the lower end of the cylinder 36 the piston 37 moves downward by the action of the weight 40 and hence the piston rod 38 moves out of engagement with the contact 96 thus breaking the circuit of the solenoid 87 thereby energizing the same. The upward movement of the core 86 is limited by a stop collar 101 and return movement of the movable switch member 70 is prevented by a dog 102 fulcrumed at 103 on a bracket 104 attached to the top of the solenoid 87. A spring 105 held on the bracket 104 bears on the dog 102 which latter is provided with a heel 106 resting on the bracket 104. Thus the dog 102 can swing upward but is prevented from swinging downward. A spring 107 connects the shelf 90 with the bracket 104 to normally hold the pawl 85 in engagement with one of the rack teeth on the movable switch member 70. It is understood that when the solenoid 87 is de-energized its core 86 drops with pawl 85 gliding over the corresponding rack teeth of the movable switch member 70, but the latter is held against downward movements by the dog 102. It will be noticed that by the arrangement described repeated raising and lowering of the piston 37 in the cylinder 36 provides a step by step movement for lifting the movable switch member 70 until the latter finally

comes in contact with the switch member 71 to close the circuit for the solenoid 51, to energize the same with a view to open the valve 30 as before explained.

The electromagnet 91 above mentioned serves to impart a downward swinging movement to the armature arm 88 with a view to disengage the pawl 85 as well as the dog 102 from the rack teeth of the movable switch member 70 to allow the latter to drop whenever the electromagnet 91 is energized. In order to energize the electromagnet 91 the following arrangement is made: Above the contact 96 is arranged a contact 110 adapted to be engaged by the upper end of the piston rod 38 whenever the piston 37 is lifted a considerable distance in the cylinder 36. The contact 110 is connected by a wire 111 with the electromagnet 91 connected by a wire 112 with the line wire 79 previously mentioned. Thus when the piston rod 38 engages the contact 110 the circuit for the electromagnet 91 is closed and the latter is energized to swing the arm 88 downward to disengage the tooth 85 and the dog 102 from the movable switch member 70 to allow the latter to drop prior to closing the switch 50 for the solenoid 51.

In order to cause occasional deflation of the object 22, in case of the piston 37 being lifted until the piston rod 38 moves into engagement with the contact 110, the following arrangement is made: In the pipe 41 connecting the cylinder 36 with the main supply pipe 25 is arranged an opening 120 normally closed by a valve 121 having its valve stem 122 forming part of a core 123 of a solenoid 124 mounted on a suitable support 125 arranged on the bracket 99 (see Figure 1). The solenoid 124 is connected by a wire 126 with the contact 110 and by a wire 127 with the wire 100 connected with the main circuit wire 79. Thus when the upper end of the piston rod 38 moves into engagement with the contact 110 then the circuit for the solenoid 124 is closed and the latter is energized thus lifting the valve 121 into open position and thereby allowing the air in the pipe 41 to escape whereby a reduction of pressure is had in the object 22 and consequently the latter becomes deflated.

In the pipe 35 intermediate the fixture 45 and the resevoir 27 is arranged a valve 130 similar to the valve 30 and having its valve stem 131 provided with an arm 132 connected with the core 133 of a solenoid 134 mounted on a bracket 135 arranged in the stand 10. A spring 136 bears on the core 133 to move the latter downward whenever the solenoid 134 is de-energized. When this takes place, the valve 130 is moved from its normal open position into closed position. The solenoid 134 is connected by the wires 140, 141 with the main circuit wires 79, 60 and hence the solenoid 134 remains energized as long as the switch 62 is in the closed position shown in Figure 1. The switch 62 is swung into open position after each game has been played to close the valve 130 and thus to shut off the fluid pressure supply to the cylinder 36. When the switch 62 is thrown over from the running position shown in Figure 1 it connects with contacts 145, 146, of which the contact 145 is connected by a wire 147 with the wire 111, and the contact 146 is connected by a wire 148 with the wire 127 thus closing the circuit for the electromagnet 91 to energize the same and thereby release the movable switch member 70 of the switch 50. In case the switch members 70 and 71 have been in contact and the valve 30 opened, the switch member 70 on dropping moves out of engagement with the switch member 71 and hence the solenoid 51 becomes de-energized. When this takes place, the valve 30 is closed to disconnect the reservior 27 from the object 22.

In playing the game, the operator first closes the switch 62 and then the players turn the hand wheels 11 with a view to allow air under reduced pressure to pass by way of the pipe 35, cylinder 36, pipe 41, and the upper portion of the main pipe 25 into the deflated toy balloons with a view to inflate the same. By providing the uncertain elements above described, the several toy balloons are more or less inflated according to the speed at which the hand wheels 11 are turned, as previously explained. It will be noticed that on turning a hand wheel 11 too fast or too slow more pressure will be had in the cylinder 36 than is desirable and consequently the valve 121 opens to deflate the corresponding balloons and allow the movable switch member 70 to drop. When a movable switch member 70 has, however, been raised the desired height to make contact with the switch member 71 then the circuit for the solenoid 51 is closed and the latter is energized. When this takes place the valve 30 is opened and full air pressure from the reservoir 27 passes into the corresponding balloon 22 and bursts the same thus finishing the game. When this has been done the switch 62 is temporarily thrown into open position, as previously explained, to close the valve 130 and to allow the several switch members 70 to drop to lowermost starting position.

It will be noticed that the inflation and deflation of a toy balloon fluctuates and its cause for doing so is unaccountable to the player. It will further be noticed that the chances of skillfully playing the game by the several players are alike although the slightest variations in the speeds of the hand wheels 11 produce different results, as above

stated. The player who succeeds in raising the switch member 70 into circuit closing position in the shortest time wins the game.

Immediately after the game is finished, the attendant in charge of the game apparatus throws the switch 62 over, as above explained, and prior to starting the next game the switch 62 is returned to its closed position.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:—

1. An amusement apparatus, including a plurality of fragile objects, a fluid pressure reservoir, means connecting said reservoir with said objects whereby permitting of the latter being demolished, and a plurality of hand-operated controlling means for governing the amount of fluid passing from said reservoir into each of said fragile objects.

2. An amusement apparatus, comprising a series of fragile objects, a reservoir charged with a fluid under pressure and having a fluid pressure connection with the interior of each of the said fragile objects to burst the same, and a plurality of hand-operated controlling means controlling the connections between the said fragile objects and the said reservoir to govern the bursting of the fragile objects by the fluid pressure discharged into it.

3. An amusement apparatus, comprising a fragile object, a fluid pressure reservoir having a main air supply pipe connected with the said fragile object to supply the latter with air pressure to burst the object, a main valve in the said main air pipe and normally closed, and a hand-operated controlling means controlling the said main valve to open the latter suddenly to allow the fluid pressure to burst the object.

4. An amusement apparatus, comprising a hollow fragile object adapted to be bursted by fluid pressure from within, a fluid pressure reservoir provided with a main pressure pipe connected with the said object to suddenly burst the same, a normally closed main valve in the said main pressure pipe, and a hand-operated controlling means connecting the said reservoir with the said object independent of the said main valve, the said controlling means controlling the said main valve.

5. An amusement apparatus, comprising an inflatable toy balloon, a fluid pressure reservoir provided with a main pipe connected with the said balloon, a normally closed main valve in the said main pipe, a cylinder having a piston, and connected by a bleed pipe with the said main pipe at a point between the said object and the main valve, a cylinder pressure supply pipe connecting the reservoir with the said cylinder, a hand wheel having a shaft extending through the said cylinder pressure supply pipe and provided with a bleed hole in the said pressure supply pipe, and operating means controlling the said main valve and controlled by the said piston.

6. An amusement apparatus, comprising an inflatable toy balloon, a fluid pressure reservoir provided with a main pipe connected with the said balloon, a normally closed main valve in the said main pipe, a cylinder having a piston and connected by a bleed pipe with the said main pipe at a point between the said object and the main valve, a cylinder pressure supply pipe connecting the reservoir with the said cylinder, a hand wheel having a shaft extending through the said cylinder pressure supply pipe and provided with a bleed hole in the said pressure supply pipe, operating means controlling the said main valve and controlled by the said piston, and a pressure reducing means controlled by the said piston and connected with the said cylinder bleed pipe.

7. An amusement apparatus, comprising an inflatable toy balloon, a fluid pressure reservoir provided with a main pipe connected with the said balloon, a normally closed main valve in the said main pipe, a cylinder having a piston and connected by a bleed pipe with the said main pipe at a point between the said object and the main valve, a cylinder pressure supply pipe connecting the reservoir with the said cylinder, a hand wheel having a shaft extending through the said cylinder pressure supply pipe and provided with a bleed hole in the said pressure supply pipe, and an operating means controlled by the said piston and having a step by step actuated means connected with the said main valve to suddenly open the same.

8. An amusement apparatus, comprising an inflatable toy balloon, a fluid pressure reservoir provided with a main pipe connected with the said balloon, a normally closed main valve in the said main pipe, a cylinder having a piston and connected by a bleed pipe with the said main pipe at a point between the said object and the main valve, a cylinder pressure supply pipe connecting the reservoir with the said cylinder, a hand wheel having a shaft extending through the said cylinder pressure supply pipe and provided with a bleed hole in the said pressure supply pipe, an operating means controlled by the said piston and having a step by step actuating means connected with the said main valve to suddenly open the same, and a releasing means connected with the said step by step actuated means to release the latter.

9. An amusement apparatus, comprising a plurality of fragile objects, a fluid pressure reservoir, main pipe connections between the

said objects and the said reservoir, a normally closed main valve in each pipe connection, and a series of hand-operated controlling devices, one for each of the said main valves to open the latter suddenly to admit full fluid pressure to the corresponding fragile object to demolish the same.

10. An amusement apparatus, comprising a plurality of fragile objects, a fluid pressure reservoir, main pipe connections between the said objects and the said reservoir, a normally closed main valve in each pipe connection, a series of hand-operated controlling devices, one for each of the said main valves to open the latter suddenly to admit full fluid pressure to the corresponding fragile object to demolish the same, and means controlled by the said controlling means and connecting the said reservoir with the said fragile object to deliver reduced fluid pressure to the fragile object to inflate the same prior to the admission of fluid pressure for bursting the fragile object.

11. An amusement apparatus, comprising a hollow inflatable fragile object, a fluid pressure supply means connected with the said object, a hand-operated controlling means controlling the connection between the said object and the said fluid pressure supply means to first admit an initial reduced pressure fluid into the object to inflate the same and to subsequently admit full pressure fluid into the object to burst the same.

12. An amusement apparatus, comprising a hollow object, a fluid pressure supply reservoir connected with the said object to charge the latter with a fluid under pressure, a pressure reducing means in the said connection between the object and the reservoir to supply the object with initial reduced pressure, a normally closed valve in the said connection and adapted to be opened to supply the object with high pressure, a hand-operated controlling means controlling the fluid pressure to the said reducing means, and operating means for the said valve and controlled by the said pressure reducing means.

13. An amusement apparatus, comprising a hollow object, a fluid pressure supply reservoir connected with the said object to charge the latter with a fluid under pressure, a pressure reducing means in the said connection between the object and the reservoir to supply the object with initial reduced pressure, a normally closed valve in the said connection and adapted to be opened to supply the object with high pressure, a hand-operated controlling means controlling the fluid pressure to the said reducing means, operating means for the said valve and controlled by the said pressure reducing means, and a pressure releasing means in the connection between the said reducing means and the object.

14. An amusement apparatus, comprising a hollow object, a fluid pressure supply reservoir connected with the said object to charge the latter with a fluid under pressure, a pressure reducing means in the said connection between the object and the reservoir to supply the object with initial reduced pressure, a normally closed valve in the said connection and adapted to be opened to supply the object with high pressure, a hand-operated controlling means controlling the fluid pressure to the said reducing means, valve operating means, and step by step actuating means for the said valve operating means and controlled from the said pressure reducing means.

15. An amusement apparatus, comprising a hollow object, a fluid pressure supply reservoir connected with the said object to charge the latter with a fluid under pressure, a pressure reducing means in the said connection between the object and the reservoir to supply the object with initial reduced pressure, a normally closed valve in the said connection and adapted to be opened to supply the object with high pressure, a hand-operated controlling means controlling the fluid pressure to the said reducing means, valve operating means, step by step actuating means for the said valve operating means and controlled from the said pressure reducing means, and a releasing device for the step by step actuating means and controlled by the said pressure reducing means.

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