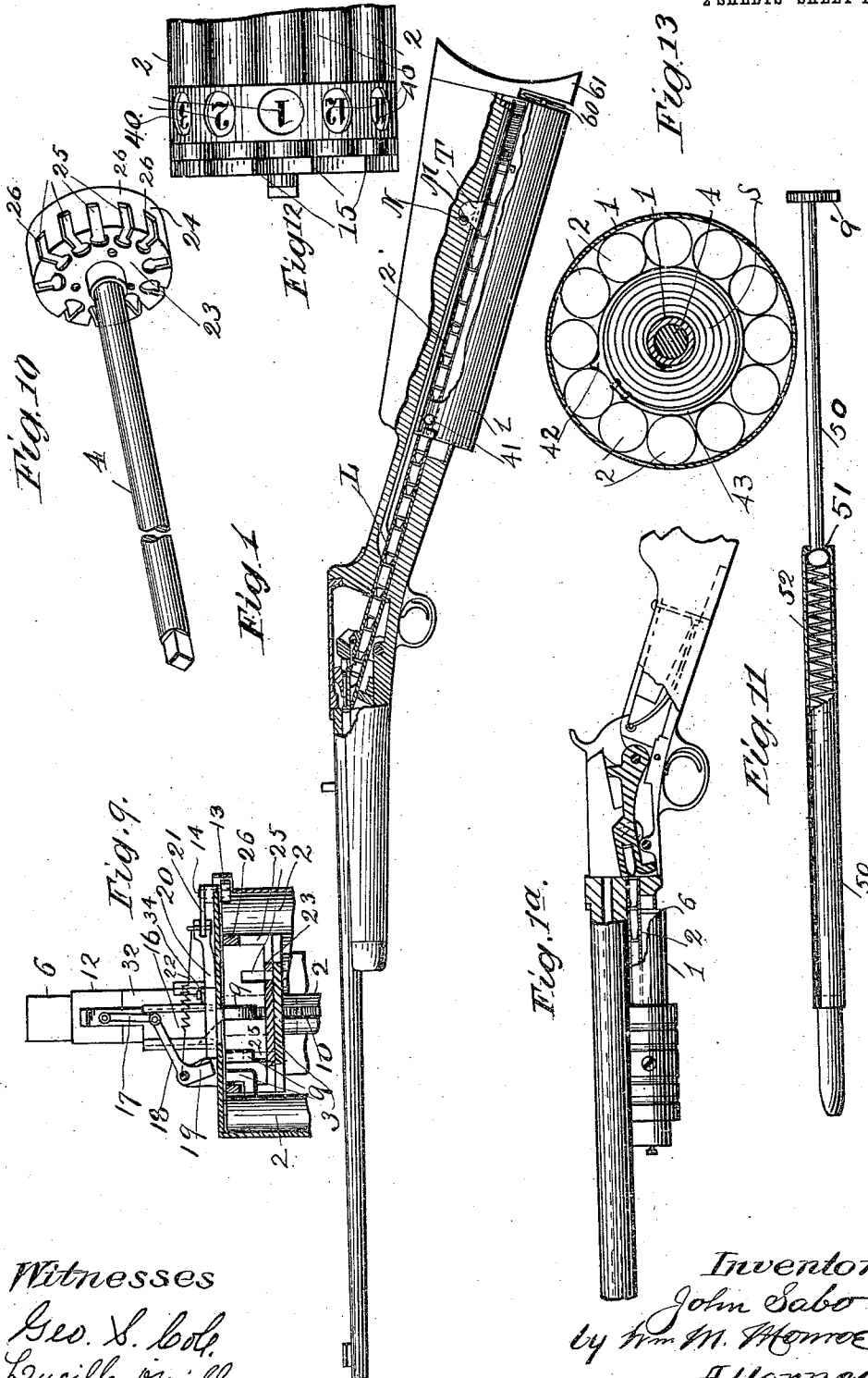


J. SABO.  
AUTOMATIC MAGAZINE.  
APPLICATION FILED FEB. 23, 1909.

947,476.

Patented Jan. 25, 1910.

2 SHEETS—SHEET 1.



Witnesses  
Geo. S. Cole  
Lucille O'Neill

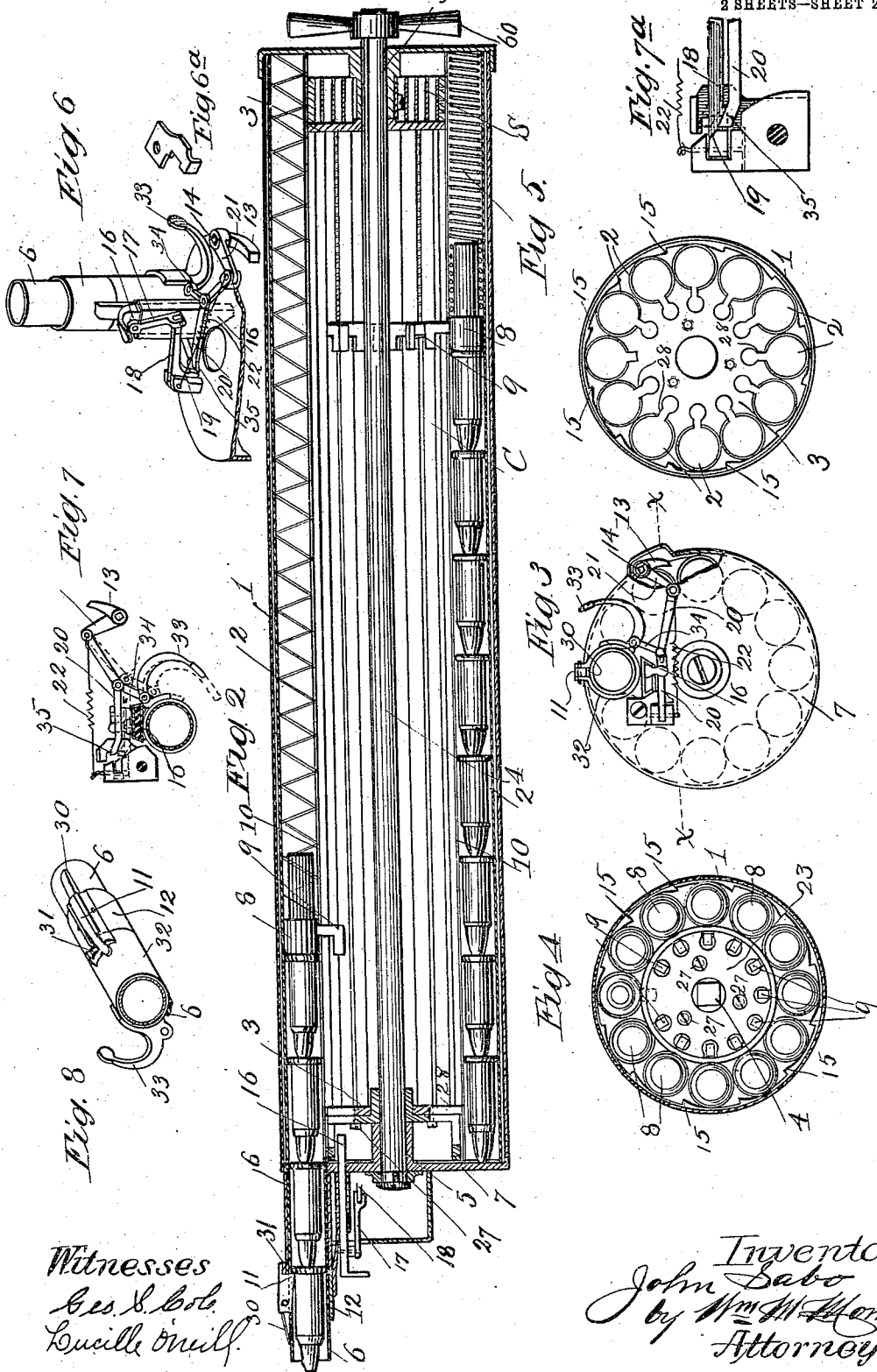
Inventor  
John Sabo  
by Wm M. McNamee  
Attorney

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Witnesses  
Geo. S. Cole  
Lucille Brill

Inventor  
John Sabo  
by *Wm. H. Moore*  
Attorney

# UNITED STATES PATENT OFFICE.

JOHN SABO, OF CLEVELAND, OHIO.

AUTOMATIC MAGAZINE.

947,476.

Specification of Letters Patent.

Patented Jan. 25, 1910.

Application filed February 23, 1909. Serial No. 479,440.

*To all whom it may concern:*

Be it known that I, JOHN SABO, a citizen of the United States, and resident of Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Automatic Magazines, of which I hereby declare the following to be a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and use the same.

The objects of the invention are to provide a magazine for a quick firing rifle or other gun, in which the cartridges can be delivered endwise, and in which a multiple number of cartridges can be stored without jamming them together and from which they can be delivered one at a time in quick succession with absolute precision, and regularly until all have been used.

The objects are further to provide simple, efficient and automatically acting mechanism for delivering the cartridges to the gun so that no further effort will be required on the part of the operator than sighting the gun and pulling the trigger, all the operating parts being designed to move in their regular order without further attention.

The invention consists in a series of cartridge storage tubes comprising a storage cylinder which is rotatable about a common axis, a conductor or guide tube leading from and in line with one of said storage tubes, automatically operating mechanism for rotating the cylinder through the diameter of one tube at the moment of delivery of the last cartridge from one of the storage tubes; means for pushing the cartridges one at a time from the tubes, means for pushing out the cartridges remaining in the conducting tube, and also, consists in the inclosing case for the tubes, and in the forms of construction and arrangement of details and combination of elements or organized parts as hereinafter described shown in the accompanying drawings, and specifically pointed out in the claims.

In the accompanying drawings Figure 1 is a longitudinal section of a gun showing the arrangement of the magazine and conducting tube therein, for forward feed of the cartridges; Fig. 1<sup>a</sup>, is a similar view of a repeating gun showing the arrangement of the various parts, adapted to rear feed of the cartridges; Fig. 2 is a longitudinal section

of the magazine chamber or case, showing the series of storage tubes therein, which comprise the magazine cylinder, the actuating spring by means of which the storage tubes, are revolved about their common axis, and the springs adapted for delivering the cartridges and the cartridge followers; Fig. 3 is an end view of the magazine showing the ratchet mechanism and detaining pawl therefor, and an automatic device for releasing the detaining pawl, and also an exterior pawl or cartridge detent adapted to prevent the delivery of the cartridges when the magazine is removed from the gun: Fig. 4 is an end elevation of the magazine, the end wall of the casing being removed, showing the slotted retaining ring and plate for the cartridge followers: Fig. 5 is an end view of the storage tubes or cylinder showing the supporting plate slotted for the passage of the lugs which operate the pawl releasing device: Fig. 6 is a perspective view of the outlet tube fixed upon the end wall of the magazine casing with which the storage tubes are designed to register in turn; in this view are shown the automatically acting devices for engaging the pawl with the ratchet teeth upon the magazine cylinder, one tooth for each storage tube so that the cylinder can be rotated by its spring, and also shows mechanism for operating the detent which retains the cartridges within the delivery tube. These two mechanisms are connected together in such a manner that when the said detent is down the pawl which is adapted to engage the ratchet teeth can not be thrown into engagement therewith, Fig. 7, is a bottom view of these devices; Fig. 7<sup>a</sup> is an enlarged view of a portion of the same, Fig. 8 is a perspective view of the sleeve upon the projecting outlet tube and the cam thereon which operates the aforesaid cartridge detent; Fig. 9 is a longitudinal section of the upper part of the cylinder and case, showing the mode of operation of the pawl and ratchet device which retains the cylinder; Fig. 10 is a perspective view of the axial shaft upon which the storage cylinder is mounted, and the slotted terminal cup shaped plate therefor to which the supporting plate for the storage tubes is secured, and Fig. 11 is a longitudinal section of the reach rod employed in one of the tubes, and adapted to force the last remaining cartridges into the gun, Fig. 12 is a side eleva-

tion of one end of the detached cylinder; Fig. 13 is a transverse section showing the main operating spring.

In these views, 1 is the magazine case, 2 the storage tubes which are supported by means of the disks 3, 3 concentrically upon a common axial shaft 4, and comprise the storage cylinder, which may be designated as a whole by the letter C. This cylinder is rotatable within the case in terminal shaft bearings 5, 5.

6 is a short combined feed outlet tube secured to the end wall or cover 7 of the magazine case 1, and designed to register in turn with the storage tubes 2, 2, as the cylinder rotates, within the case. Each tube 2 is provided with a follower 8, which is provided with a lug 9, extending through the longitudinal slot 10, in the tube. The cartridges are fed to these tubes in turn through the short tube 6, until all are full, and are retained therein by the end wall 7 except in one tube which registers with the outlet tube 6, and a detent 11 pivoted upon a sleeve 12 thereon retains the cartridges in this tube until the magazine is put into place in the gun.

A strong spiral spring S is employed to rotate the cylinder through a distance equal to the space between the centers of the tubes. To limit this movement a pawl 13, pivoted upon the case at 14 is normally in engagement with one of the ratchet teeth 15 upon the periphery of the cylinder and prevents its movement while each tube is being emptied of its contents. It is essential that the movement of the cylinder should be an automatic intermittent one, and that the movement thereof should take place as soon as each storage tube has been emptied of its cartridges. To accomplish this action of the device, the lug 9 on each follower 8, is adapted to engage with a sliding bar 16, mounted in the wall 7 of the case. The movement of this bar is conveyed to the pawl 13, to place it in position to release one of the ratchet teeth, by means of the link 17, bell crank lever 18, having an engaging arm 19, a sliding bar or rod 20, and a lever arm 21, upon the pivot rod 14 of the pawl, so that every time one of the followers engages the inner inclined end of the bar 16 the pawl will be raised out of contact with its corresponding ratchet tooth, until the last cartridge has passed out of that tube, when the cylinder will be free to turn, and the lug will slide off from the sliding bar 16. Immediately a spring 22 will return the pawl, so as to cause it to engage the next ratchet tooth in order and detain the cylinder from further movement.

The axial shaft is secured to the cylinder by means of the disk shaped head 23, thereon which is provided with a rim 24. Both disk and rim are slotted longitudinally at 25, 25

to permit of the passage of the lugs 9, 9, and a terminal solid portion 26, retains the lugs in place so that they will not shoot out of the cylinder. This disk is secured to the supporting disk 3 by means of screws, 27, 27, so that all parts move together and the outer disk 3 is slotted radially at 28, 28, for the passage of the lugs 9, 9. This construction permits of the removal of the shaft and followers when desired.

The cartridge detent 11 is depressed by means of an integral spring 30 when released and is raised by means of the cam 31 upon the sleeve 32, rotatable on the outlet tube. This sleeve is rotated by means of the finger operated lever 33, secured thereto and is connected by means of a link 34 with the longitudinally movable bar 20, hereinbefore described, and when the lever 33 is moved this bar 20 is moved sidewise as shown in Figs. 7 and 7<sup>a</sup>, until its outer end 35 is in engagement with the lever arm 19, which operates the bar 20 and through its agency the pawl 13. The movement of the lever 33 has no direct effect upon the movements of the pawl 13, since the spring 22 serves to normally retain the pawl in contact with one of the ratchet teeth upon the cylinder. But the movements of the lever 33 serve to throw the bar 20 into and out of line with the operating lever 19, so that the lever 19 operated by the sliding bar 16 and lug 9 can not release the pawl 13 when the cartridge detent 11 is down.

The sliding bar 20, is provided with an inclined extremity 35, shown upside down in Fig. 7 and 7<sup>a</sup>. This extremity when the bar is thrown outward, (as seen in Fig. 7 and in Fig. 7<sup>a</sup> in dotted lines) will engage the inclined face F on the rock arm 19, and hence the lever 18 and arm 19 will not move the bar forward when the lug 9 engages the slide 16, but when the bar 20 is thrown in as shown in solid lines in Fig. 7<sup>a</sup> the arm 19 will engage the bar and move it forward. A guard plate G shown in Fig. 6<sup>a</sup> serves to retain the extremity of the bar 20.

In Fig. 11 is shown a reach rod 50 in two portions jointed at 51, one part being slidable within the other and provided with a modified form of lug 9' at one end. This reach rod is placed in the last tube to be used, and will force the cartridges out of the conducting tube L which leads to the gun. A spring 52 makes the result more easily obtained. This device is substituted for a follower 9 in the last tube only.

In Fig. 12 is shown the extremity of the cylinder and numerals therein as shown one for each tube adapted to show through an opening 41, in the case serve to indicate what storage tube is in use at any time, and in this manner will indicate how many tubes have been used.

In Fig. 13 the main operating spring S

is shown. This spring is housed within a cylinder or case 43 and the case is provided with a lug 42 whereby the rotary pressure of the spring is transmitted to the cylinder.

5 This lug can be placed between any two storage tubes 2, 2, and hence the pressure of the spring can be made adjustable at pleasure.

10 In Fig. 1 the cylinder case is shown detachable from the gun stock by means of lugs, T which enter the stock and a recess M, is engaged by one half of a pin N, which can be turned around half way to release it. The shoulder piece for the stock is preferably 15 formed of aluminium and projects downwardly so as to be in line at its lower edge with the edge of the case 1, and in this manner it protects a projecting handle 60 by means of which the shaft 4 can be rotated 20 when filling the magazine with cartridges.

Having described the invention what I claim as new and desire to secure by Letters Patent is:

1. In an automatically acting cartridge 25 magazine, a cylinder composed of closely approximated storage tubes for cartridges, said storage tubes concentrically arranged about a common axis, a common combined loading and delivery tube, adapted to register with all said storage tubes in turn, a 30 device in each tube for exerting a constant pressure upon the cartridges therein to discharge the same in turn, a device for giving an intermittent rotary movement to said cylinder, controlled by the cartridge discharging device in each tube, whereby said 35 intermittent movement will take place as soon as the last cartridge is discharged from each tube and means for retaining the cartridges in all the tubes except the one in line with the delivery tube. 40

2. In an automatically operating cartridge magazine, a rotatable cylinder composed of 45 a multiple number of cartridge storage tubes, each tube adapted to contain a multiple number of cartridges, and concentrically arranged about a common axis, an inclosing case therefor and an axial shaft mounted in said case, and adapted to rotate with said 50 cylinder, a common loading and delivery tube at one end of said case, adapted to register in turn with all said storage tubes, a spring in said case arranged to exert a constant rotary pressure upon said cylinder, 55 ratchet teeth upon said cylinder one for each storage tube, a pawl upon the casing normally in engagement with one of said ratchet teeth, a device in each tube adapted to exert a constant pressure upon the cartridges 60 therein, to discharge the same in turn, a wall in said casing adapted to retain said cartridges in said storage tubes, when not registering with said delivery tube, a device for releasing said pawl, adapted to be alternately 65 engaged and disengaged in turn by said

cartridge removing devices in said tubes, whereby the cylinder will rotate the distance between the last emptied storage tube and the next adjacent tube, and means for engaging the pawl with the next following 70 ratchet tooth.

3. In an automatically acting cartridge magazine for a quick firing gun, adapted to deliver cartridges longitudinally or endwise thereto, a rotatable cylinder, composed 75 of a multiple number of cartridge storage tubes, each tube adapted to inclose a multiple number of cartridges, a case therefor, having end walls inclosing the ends of said tubes, a spring pressed cartridge removing 80 device in each tube, a delivery tube in one end wall of said casing adapted to register in turn with said tubes as said cylinder rotates, and a pawl and ratchet device adapted to give an intermittent rotary movement to 85 said cylinder, said pawl and ratchet device adapted to be controlled by said cartridge removing devices in turn, as the last cartridge is removed from each tube.

4. In an automatically acting cartridge 90 magazine adapted to be secured to a gun and to deliver cartridges thereto in an endwise direction, a case detachably secured to the gun, a cylinder rotatably mounted within said case and composed of a multiple number 95 of cartridge storage tubes, concentrically arranged about a common axis, each tube adapted to contain a multiple number of cartridges arranged end to end, a delivery tube in the end wall of the case adapted to 100 register in turn with said storage tubes, a conducting tube in line with said delivery tube, automatically acting means for giving an intermittent rotary movement to said cylinder, to bring each tube in turn in line with 105 said delivery tube, as the last cartridge is discharged therefrom, substantially as described.

5. In an automatically acting cartridge magazine, a cylinder composed of a multiple 110 number of cartridge storage tubes concentrically arranged about a common axis, a supporting shaft therefor, a casing inclosing said cylinder, and in which said shaft is mounted, a spring pressed follower in each tube adapted 115 to exert a constant pressure upon the cartridges therein, a plate on the casing adapted to retain the cartridges in all but one tube, a delivery tube on the said casing adapted to register in turn with all said tubes, a 120 ratchet device having spaced teeth, adapted to move in unison with said cylinder, a spring pressed pawl pivoted to said case, and adapted to normally engage one of the teeth of said ratchet device, means for exerting 125 a constant rotary pressure upon said cylinder, releasing mechanism upon said case for said pawl, said releasing mechanism adapted to be engaged by each of said followers in turn as the last cartridge is discharged from 130

its corresponding tube, and to be immediately disengaged therefrom as said cylinder rotates.

6. In an automatically acting cartridge magazine, designed to deliver cartridges endwise, a cylinder composed of parallel cartridge storage tubes, concentrically arranged about a common axis, a case therefor, having end walls, inclosing said tubes, a delivery tube in one end wall adapted to register in turn with said storage tubes, a spring pressed follower in each tube, means for exerting a constant rotary pressure upon said cylinder, a ratchet device having spaced teeth, and rotatable with said cylinder, a spring pressed pawl, adapted to engage and secure each tooth in turn as said cylinder rotates, a releasing device for said pawl, adapted to be alternately engaged and disengaged by the follower in each storage tube in turn as said cylinder rotates, and means for regulating the degree of rotary pressure upon said cylinder.

7. In combination with a cylinder composed of a series of storage tubes, each tube adapted to contain a multiple number of cartridges, lying end to end therein, an outer case having end walls and inclosing the said cylinder, a central shaft in said case to which said cylinder is secured, said shaft and cylinder rotatable within said case, a discharge tube in the front end wall, adapted to register in turn with each storage tube, the said end wall serving as a detent to prevent the escape of the cartridges in the other tubes, a follower and spring therefor in each tube, arranged behind the cartridges therein and arranged to exert a constant pressure thereon, each storage tube being provided with a longitudinal slot, a lug on each follower adapted to project through the slot in its respective tube, a pawl pivoted upon said case, a corresponding ratchet device movable with said cylinder, said ratchet device having teeth, with one of which said pawl is normally in engagement, a movable member in said head adapted to engage in turn with said lugs on said followers as the last cartridge is discharged from each tube, and intermediate mechanism, operatively connecting said movable member and said pawl, whereby said pawl will be released when said lug engages with said movable member, and a spring adapted to return said pawl as soon as said movable member is released from said lug by the rotary movement of said cylinder, and an actuating device for rotating said cylinder.

8. The combination with a cylinder composed of a series of parallel cartridge storage tubes, concentrically arranged about a common axis, an inclosing case therefor having an end plate, a delivery tube thereon adapted to register in turn with the said storage tubes, spring pressed followers in

said tubes, arranged behind said cartridges, means for exerting a constant rotary pressure upon said cylinder, said tubes being provided with longitudinal slots, lugs upon said followers projecting through said slots, a ratchet device upon said cylinder, provided with teeth, a spring pressed pawl pivoted upon said end plate, adapted to normally engage with one of said teeth, a sliding bar adapted to be engaged in turn by said lugs as said cylinder rotates, said lugs being brought into position to engage said sliding bar only when the last cartridge is discharged from the corresponding tube, an operating arm for the pawl, a longitudinally moving bar attached thereto, a bell crank lever, adapted to throw said longitudinally moving bar, a link connecting said bell crank lever and said aforesaid sliding bar.

9. The combination with a case and a rotatable cylinder therein, composed of a series of cartridge storing tubes, a case therefor in which said cylinder is adapted to rotate, a pawl pivoted on said case, spaced ratchet teeth on said cylinder, spring pressed followers in said tubes, said followers provided with projecting lugs, said tubes being longitudinally slotted to permit the protrusion of said lugs through the tubes, and longitudinal movement thereof, a pawl releasing device, arranged in the path of each of said lugs in turn, and adapted to be engaged thereby, when the last cartridge is discharged from the corresponding tubes, a return spring for said pawl, a delivery tube for said cylinder arranged to register in turn with each storage tube, a cartridge detent therein, a sleeve and cam thereon adapted to engage said detent, and a lever for said sleeve, said lever operatively connected with said pawl releasing device, whereby when said detent is in engagement with a cartridge said pawl can not be released.

10. The combination with a cartridge storage cylinder composed of parallel tubes, concentrically arranged about a common axis, of a case in which said cylinder is rotatably mounted, a delivery tube thereon adapted to register in turn with each storage tube, means for discharging the cartridges from each tube in turn, and automatically acting means for giving an intermittent rotary movement to said cylinder as each tube is emptied to bring the next tube into line with said delivery tube.

11. The combination with a cartridge storage cylinder provided with longitudinal storage tubes concentrically arranged about a common axis, of a case therefor, in which said cylinder is rotatably mounted, said case provided with a registering opening, numerals on the periphery of the cylinder one for each tube, and adapted to appear in said opening as said cylinder is rotated,

means for discharging all the cartridges from each one of said tubes one at a time, and means for giving an intermittent motion to said cylinder.

5 12. The combination with a cartridge delivery tube, of a spring detent pivoted in said tube, a sleeve rotatable on said tube, and a cam thereon adapted to release said detent, and an operating lever for said  
10 sleeve.

13. In combination, a storage cylinder for cartridges, a case therefor, in which said cylinder is rotatably mounted, an actuating coiled spring therefor, adapted to engage  
15 said case, a housing for the spring, said housing provided with a lug and said cylinder provided with recesses in which said lug can be inserted for adjustment of said  
20 spring.

14. The combination with a cartridge storage cylinder provided with longitudinal tubular chambers for storing cartridges, of an inclosing case provided with a discharge opening adapted to register in turn with  
25 said tubular openings in said cylinder, the said cylinder rotatable in said case, means

for giving an intermittent movement to said cylinder, means for discharging the cartridges in each tube in turn, from said discharge opening except in the last tube, a  
30 conducting tube leading from said opening, and a telescoping spring actuated reach rod in the last tube to be used, said reach rod adapted to extend into said conducting tube, and discharge the cartridges in said con-  
35 ducting tube.

15. The combination with a quick firing gun provided with a stock, of a cylindrical case detachably secured to said stock, a rotatable cartridge storage cylinder mounted  
40 therein, a supporting shaft therefor, an external handle for said shaft and a shoulder plate for the end of said stock, said shoulder plate spaced from the outer end of said case and having its lower edge projecting  
45 beyond the lower edge of said stock.

In testimony whereof, I hereunto set my hand this 19th day of February 1909.

JOHN SABO.

In presence of—

H. C. BOYD,

MAURICE GOLDFRIES.