C. A. NELSON.

MACHINE GUN MAGAZINE FILLER.

APPLICATION FILED AUG. 16, 1916. RENEWED MAY 26, 1917.

1,306,019.

Patented June 10, 1919

2 SHEETS—SHEET 1.

Fig. 1,

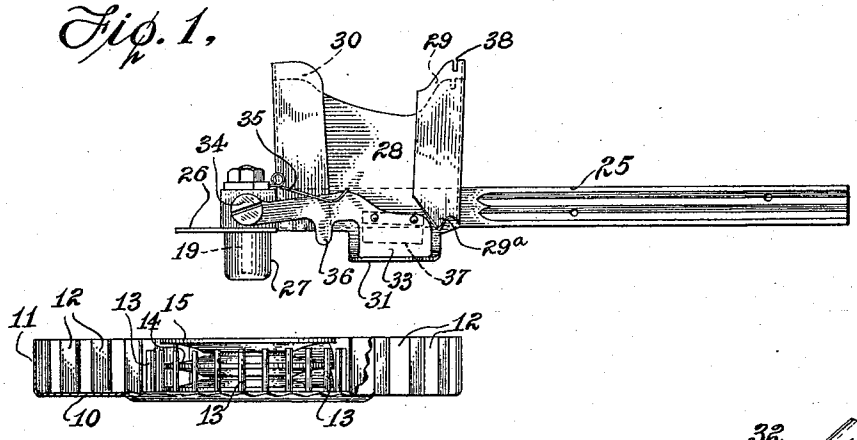


Fig. 2,

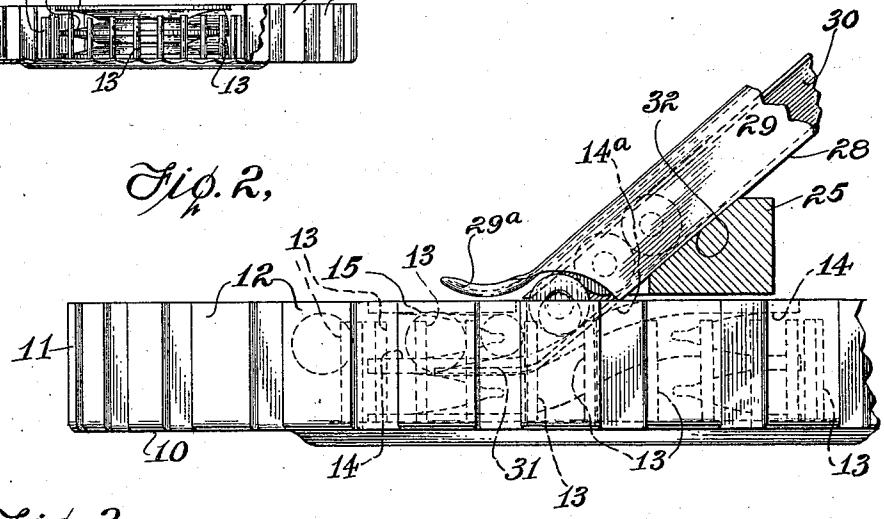
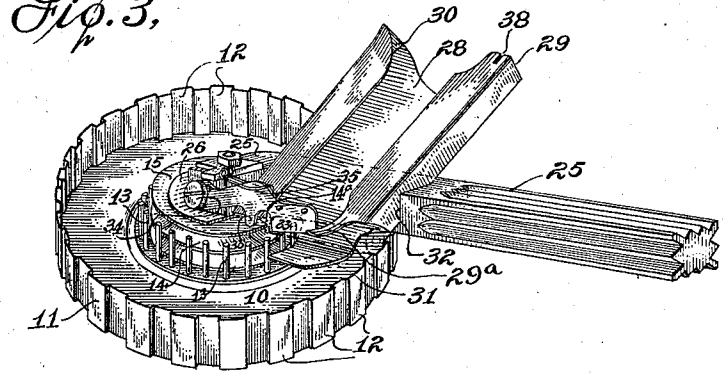


Fig. 3,



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2 SHEETS—SHEET 2.

Fig. 4.

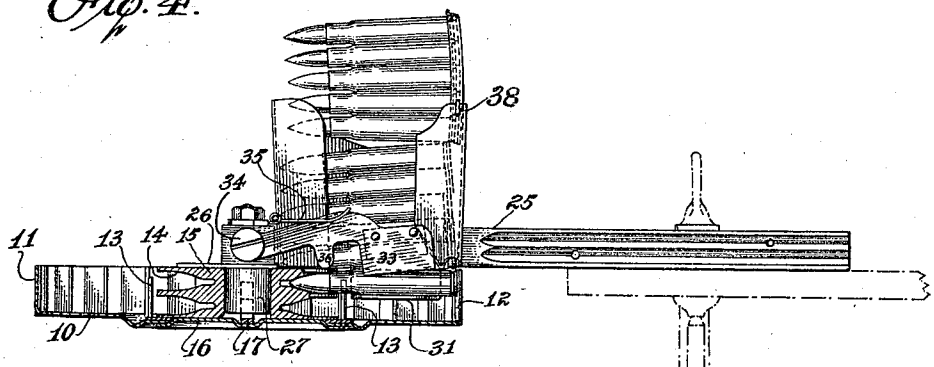


Fig. 5.

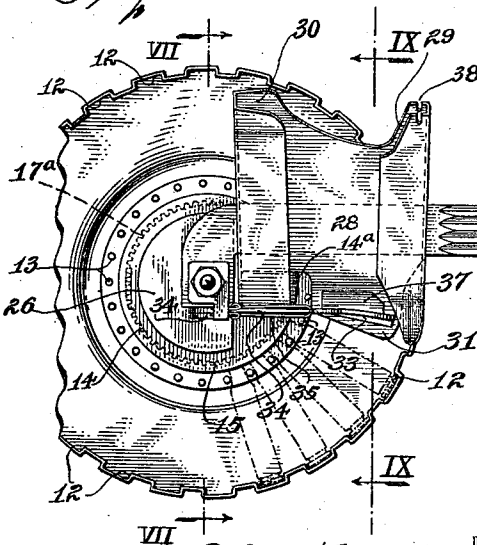


Fig. 6.

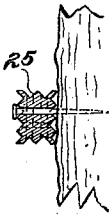


Fig. 8.

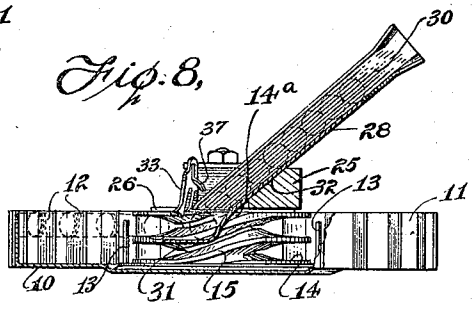


Fig. 7.

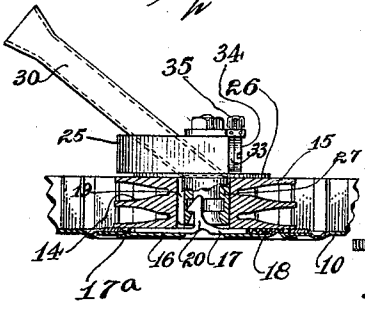
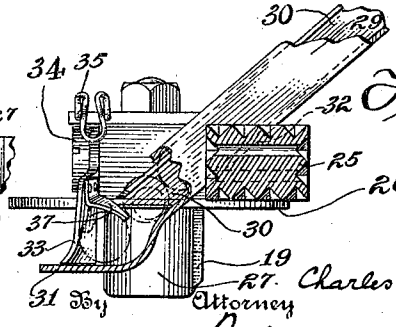


Fig. 9.



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UNITED STATES PATENT OFFICE.

CHARLES A. NELSON, OF UTICA, NEW YORK, ASSIGNOR TO SAVAGE ARMS CORPORATION, A CORPORATION OF DELAWARE.

MACHINE-GUN-MAGAZINE FILLER.

1,306,019. Specification of Letters Patent. Patented June 10, 1919.

Application filed August 16, 1916, Serial No. 115,128. Renewed May 26, 1917. Serial No. 171,294.

To all whom it may concern:

Be it known that I, CHARLES A. NELSON, a citizen of the United States, and resident of Utica, in the county of Oneida and State of New York, have invented the following-described Improvements in Machine-Gun-Magazine Fillers.

This invention relates to the loading or filling of the detachable magazines of fire arms and provides a simple and desirable device which overcomes much of the difficulty and delay heretofore experienced in that operation. The invention is particularly well suited for use with that type of magazine in which the cartridges are radially disposed in one or more layers in a circular container, and when so used enables the magazine to be filled by merely rotating it on a fixed support adjacent the supply of cartridges, the organization being such that the removal of the magazine from the filling device serves to lock the cartridges in the latter and also confines the delivered cartridges in the magazine so that they cannot be displaced or fall out in handling or transit. The invention further includes the arrangement of the parts whereby the device may be reversely used for unlocking the magazine and emptying it when required, the cartridges being thereby returned to their original source of supply. These and other objects are accomplished by a structure of such compact form as to be capable of ready transportation and use directly at the front. I have illustrated one embodiment of my invention in the accompanying drawings wherein—

Figure 1 is a front elevation of the filler and the magazine about to be placed thereon, the latter being partly broken off to illustrate interior construction;

Fig. 2 is an enlarged side elevation, with parts in section, illustrating the inter-engagement of the magazine with the filler;

Fig. 3 is a perspective view of the filler and magazine in position for use;

Fig. 4 is a front elevation of the filler with the magazine in section, illustrating also one of the modes of attaching the filler to a support;

Fig. 5 is a top plan of Fig. 4;

Fig. 6 a cross section on line VI—VI of Fig. 5;

Fig. 7 is a partial cross section on line VII—VII of Fig. 5;

Fig. 8 is a cross section on line IX—IX of Fig. 5; and

Fig. 9 is a larger scale detail of the cartridge blocking gate or keeper.

Although the filling device might be employed for filling or emptying various forms of magazines and might deliver or receive other objects than cartridges, for purposes of illustration, it is herein shown as constructed for that particular type of magazine used in the Savage-Lewis automatic machine gun. This magazine which is well known to the art comprises a sheet metal drum or shell having a main annular wall 10 and a flange or peripheral wall 11, the latter being provided with a series of internal upright grooves 12 which lie parallel with the axis of rotation of the magazine and receive the bases of the cartridges. The cartridges are confined to radial positions within the drum with their bases in these grooves, by a circular row of pins 13 appropriately secured to the drum wall 10 toward its center and as thus separately held, the cartridges may advance axially, toward the wall 10, as permitted by the groove 14 in a central body or hub member 15 which latter receives and guides the points of the cartridges. The said hub member is rotatably mounted on the drum wall 10 by means of its plate 16, (Fig. 7) overlapping the inner edge of that wall, as shown in Fig. 1 and when held stationary (its normal condition) while the drum is rotated upon it, the groove 14 acts as a stationary screw or cam to cause the cartridges to advance toward the drum wall 10 or recede from it according to the direction of rotation. The drum shown in the drawing is designed to hold two layers of cartridges, although more are possible, and each is moved to its final position by the groove 14, which is continuous from top to bottom as indicated in Fig. 8. It will be apparent that each cartridge must be introduced at the entrance (14ª Fig. 8) to this groove (which is also the exit when the magazine is on the gun) and that by rotating the drum with respect to its grooved hub part the cartridges can be positively advanced toward or from the exit as required. For preventing such relative rotation of the drum and hub part when the magazine is removed from the gun, there is provided a latch in the form of a slide 17 housed be-

tween the plate 16 and the end of the hub, and normally urged by a spring 18 in the direction to engage with a series of teeth or notches 17ª in the inner edge of the drum wall 10. The latch can be operated from the exterior through the hole in the plate 16 but is automatically unlocked by the engagement of its hook 20 with the post of the gun on which it is supported when in use, and it is similarly unlocked when the magazine is placed on the corresponding post of the filling device of this invention as presently explained. The hook 20 in both cases serves the further purpose of securing the magazine to the post and in both cases the post is formed to engage the hub by a spline so as to hold it against rotation with the drum.

The specific form of magazine illustrated is similar to that shown in Patent No. 723,719, issued March 24, 1903, to T. K. North, and has heretofore been filled by the slow step-by-step method described in said patent, involving the insertion of each cartridge in a drum groove 12 when it registers with the entrance of the helical groove or passage 14. The drum is then turned one step in a direction to feed the cartridge along the groove 14 and a second cartridge is introduced into the next adjacent groove 12 and between the pins 13 for that groove. The drum is again turned one step and the operation is repeated until the magazine is filled, the cartridges being introduced, one at a time, and the rotation being intermittent.

The filling device of this invention comprises a main supporting arm in the form of a corrugated bar 25 adapted to be clamped (Fig. 4) or nailed (Fig. 6) to any convenient support such as a tree or post. If no convenient support is available to which the arm 25 may be secured, the drum of the magazine may be held or supported and the arm 25 may serve as a handle for rotating the core and filling device in respect to the drum.

The free end of the arm carries a flange 26 and a post 27 similar to the magazine receiving post on the gun and adapted to receive and hold the hub part 15 of the magazine in a similar manner, the hook 20 snapping over the interior shoulder in the post to retain the magazine thereon, and also and coincidently withdrawing the latch 17 so as to unlock the drum from the hub and thereupon permit relative rotation therebetween. The post has a key-way 19 along one side which permits the magazine to be placed thereon only in that angular position in which the entrance to the cam groove or channel 14 registers with the outlet from the cartridge feed chute carried by the arm. Unlocking of the drum is thus made dependent upon proper position of the magazine on the post. The feed chute which may be the terminal part of a relatively large cartridge hopper is conveniently made of sheet metal and comprises an inclined back wall 28 with its margins bent over to form two opposing channels 29 and 30, the channel 30 which is nearest the axis of the post being adapted to receive the points or bullet ends of the cartridges and being narrower than the cartridge bases, while the channel 29 is wide enough to accommodate the base ends. By this means the cartridges can enter the chute only with their points directed toward the axis of the magazine, as will be evident. The chute is inclined toward the direction of rotation of the drum, so that the cartridges may roll downwardly therein, and between channels the chute is open to provide access for the operator's fingers when necessary. Conveniently, the chute is secured to a beveled face 32 of the supporting arm 25 and its lower end is disposed in the radial plane of the receiving or entrance end 14ª of the helical groove 14 so that the points of the cartridges moving down the chute will enter directly into said groove as their body parts drop into the cartridge spaces provided by the pins 13 and the drum grooves 12. The lower end of the back wall 28 of the chute extends into the magazine drum between the row of pins 13 and the grooves 12, at which point it is provided with a substantially horizontal terminal shelf or apron 31 suited for supporting the entering cartridges at the level of the upper layer in the magazine, until they are well entered into the groove 14. This apron is narrower than the length of the cartridges and therefore the pins 13 and grooves 12 may engage the cartridge before it leaves the apron. This action is more clearly shown in Fig. 2 wherein it will be observed that the base of the cartridge drops into the groove 12 about as the bullet end drops between the pins 13 and the continued rotation of the drum with respect to the chute draws the cartridge forwardly out of the chute and along the apron. At the end of the apron 31 the bullet will be sufficiently well engaged with the groove 14 to sustain the cartridge thereafter at the level of the groove. As each cartridge is thus withdrawn from the chute, the next following cartridge becomes similarly engaged by the pins 13 and is thereby drawn out of the chute and so on until the magazine is filled in its lower and upper layers. The completion of the filling process is indicated by the engagement of a cartridge with the back side of the chute wall 28, preventing further rotation of the drum. Thereupon the latch 17 is operated to release the hub part of the magazine from the post 27, permitting the filled magazine to be removed from the filler. The latch 17 thereupon springs into engagement with the teeth 17ª above referred to, and, by locking

the hub and drum parts against rotation thereby prevents movement of the cartridges to the exit entrance 14ª, that is to say, prevents accidental displacement or loss of the cartridges.

The removal of the magazine from the post 27 allows the gate or keeper 33 to drop in front of the delivery end of the chute as indicated in Fig. 1 and also in Fig. 9. This keeper is pivoted to the end of the supporting bar 25 by a screw 34 and is urged to its closed position by a small spring 35. Its depending shoulder 36 is adapted for engagement with the upper surface of the hub part of the magazine when the latter is placed on the post 27 so as thereby to raise the keeper from obstructing position at the delivery end of the chute, and thereby allow the cartridges free access to the magazine. The rear face of this keeper 33 carries a rearward finger 37 adapted to penetrate between the two lowermost cartridges, when the keeper is closed which tends to maintain the lowest cartridge in a position for instant engagement with the magazine when the latter is applied.

From the description of the operation above given it will now be apparent that by applying a full magazine to the filler, thereby unlocking both the keeper 33 and the latch 17, and reversely rotating the magazine, the cartridges in the latter may be delivered upwardly into the chute and the magazine emptied. For this purpose the lower end 29ª of the chute flange 29 is curved upwardly as shown in Fig. 2, giving the cartridges an easy entrance to the chute. When the device is used as a filler as already described the cartridges may be supplied thereto from a hopper or by hand, the operator rotating the drum with one hand while using the other to keep the chute filled. If the cartridges to be used are supplied in clips of the kind used in certain magazine rifles they may be delivered directly from the clips into the chute. For this purpose the upper end of the chute is provided with one or more notches 38 (see Figs. 4 and 5) for supporting and guiding engagement with the clip and when the latter is placed therein the cartridges may be pushed directly downward into the chute.

Claims:

1. Apparatus of the kind described, comprising the combination of a self-locking magazine and means for filling it including a support for the magazine adapted to unlock the same.

2. In apparatus for filling cartridge magazines, the combination of a self-locking magazine, a self-locking filler therefor and means whereby the engagement of magazine and filler unlock both of them.

3. A magazine filler, including a support for a substantially cylindrical magazine, and a cartridge containing device secured to said support and having its outlet disposed substantially radially of the magazine at one end thereof.

4. A magazine filler, including a support for holding a substantially cylindrical magazine with its axis extending in an approximately upright direction, and a cartridge delivering device carried by said support above the magazine at one side of the axis thereof, and having its outlet extending radially of said magazine.

5. The combination with a substantially cylindrical magazine, including two relatively rotatable parts, of a member adapted to engage with said magazine at the center thereof, and a cartridge delivering device secured to said member and having its outlet extending substantially radially of said magazine.

6. In cartridge magazine filling apparatus, the combination of a supporting member having a projection adapted to receive the center of a cartridge magazine of the rotary type, and a cartridge chute through which cartridges may be delivered laterally to substantially radial positions in said magazine upon the relative rotation of said magazine and chute.

7. The combination with a rotary type cartridge magazine adapted to contain radially disposed cartridges, of a filler for said magazine having a cartridge guiding passage through which cartridges may be delivered laterally, said passage terminating along a line substantially radial to said magazine.

8. In cartridge magazine filling apparatus, the combination of a supporting arm, a cartridge chute borne thereby having a cartridge guiding terminal plate, and means for attaching the magazine to said arm with said plate projecting therein.

9. The combination with a rotary type cartridge magazine containing cartridges in superposed layers, of a filler therefor having a cartridge guiding member projecting into said magazine at the level of the first layer thereof.

10. The combination with a rotary type cartridge magazine containing cartridges between upright pins thereon, of a filler for said magazine having a cartridge guiding passage projecting into the magazine below the level of said pins and at one side thereof.

11. A magazine filler, including a pivotal support for the cartridge-receiving spaces of the magazine, a cartridge chute juxtaposed thereto and means for delivering cartridges from the chute to the magazine by the rotation of the latter.

12. A magazine filling device including a delivering chute, a gate normally closing the lower end thereof, means carried by said gate for insuring the proper positioning of

the lowermost cartridge, and means for opening said gate upon the placing of the magazine in position to be filled.

13. The combination with a magazine, including two relatively rotatable parts cooperating to form a plurality of cartridge receiving spaces, said parts being normally locked against relative rotation, of means adapted to coact with one of said parts to support the magazine and permit free relative rotation of said parts, and a delivering device terminating adjacent to said magazine and serving to direct cartridges into the latter as one of the parts of said magazine is rotated.

14. The combination with a magazine, including a hub part having a helical cartridge receiving passage, a drum having a series of axially extending cartridge passages, said drum and hub being relatively rotatable, of a magazine filling device including a support for said hub adapted to hold the latter against rotation, and a delivering chute terminating adjacent one end of said helical passage.

15. The combination with a magazine, including a hub having a helical cartridge receiving passage, a drum having a series of axially extending magazine passages, said drum and hub being relatively rotatable, of a magazine filling device including a support for said hub adapted to hold the latter against rotation, and a delivering chute terminating adjacent one end of said helical passage and having a flange extending laterally within the drum.

16. The combination with a magazine, including a hub having a helical cartridge receiving passage, a drum having a series of axially extending magazine passages, said drum and hub being relatively rotatable, and means for normally locking said drum and hub against relative rotation, of a filling device including a support for said hub, means for holding said locking device in inoperative position, and a chute extending into said drum at one end of said helical passage.

17. A magazine filler including an arm having one end adapted to be secured to a support, a post at the opposite end of said arm and upon which a magazine may be supported with a part of said magazine free to rotate, and a delivering chute secured to said arm intermediate of the ends thereof and terminating adjacent to said magazine.

18. A magazine filling device including an arm having one end portion presenting surface irregularities and adapted to be secured to a support, a post depending from the opposite end and adapted to support a magazine and permit free relative rotation of the parts thereof, a chute carried by said arm intermediate of its ends and adapted to deliver cartridges to the magazine, and a gate normally closing the lower end of said chute and adapted to be automatically moved to inoperative position upon the placing of the magazine on said post.

19. In cartridge magazine filling apparatus, the combination of a support, a cartridge container borne thereby having a substantially horizontally disposed terminal plate, and means for attaching the magazine to said support with said plate disposed therein.

20. The combination with a magazine, including a hub having a helical cartridge-receiving passage, a drum having a series of axially extending magazine passages, said drum and hub being relatively rotatable, and means for normally locking said drum and hub against relative rotation, of a filling device including a depending support for said hub, means for holding said locking device in inoperative position, and a container carried by said support for holding a plurality of cartridges approximately parallel to each other and radially in respect to said magazine, said container having a delivery passage extending down into said magazine between said hub and the periphery of said drum and terminating in a laterally projecting plate over which the cartridges move from the lower end of said passage upon the rotation of said drum.

In testimony whereof, I have signed this specification.

CHARLES A. NELSON.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."