Feb. 23, 1932. C. A. LARSSON ET AL 1,846,034

DRUM MAGAZINE FOR MACHINE GUNS AND AUTOMATIC SMALL ARMS

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Fig. 1.

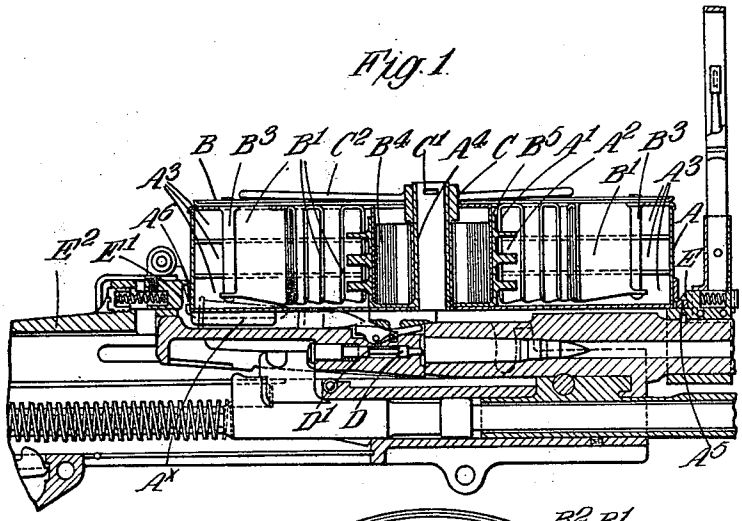

Fig. 2.

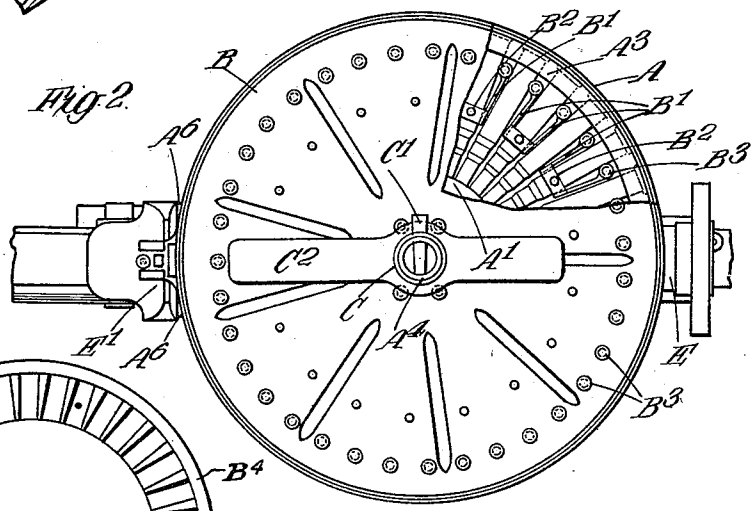

Fig. 8.

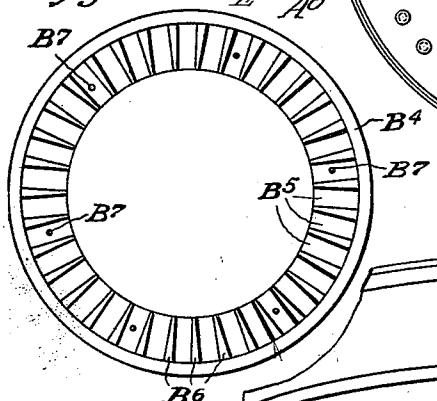

Fig. 3.

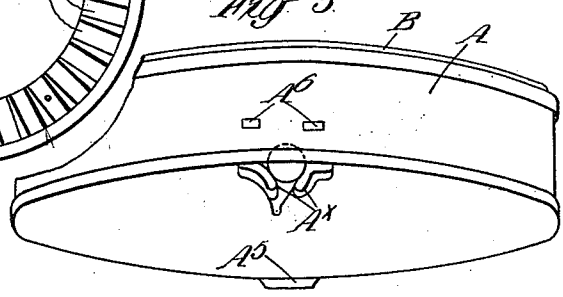

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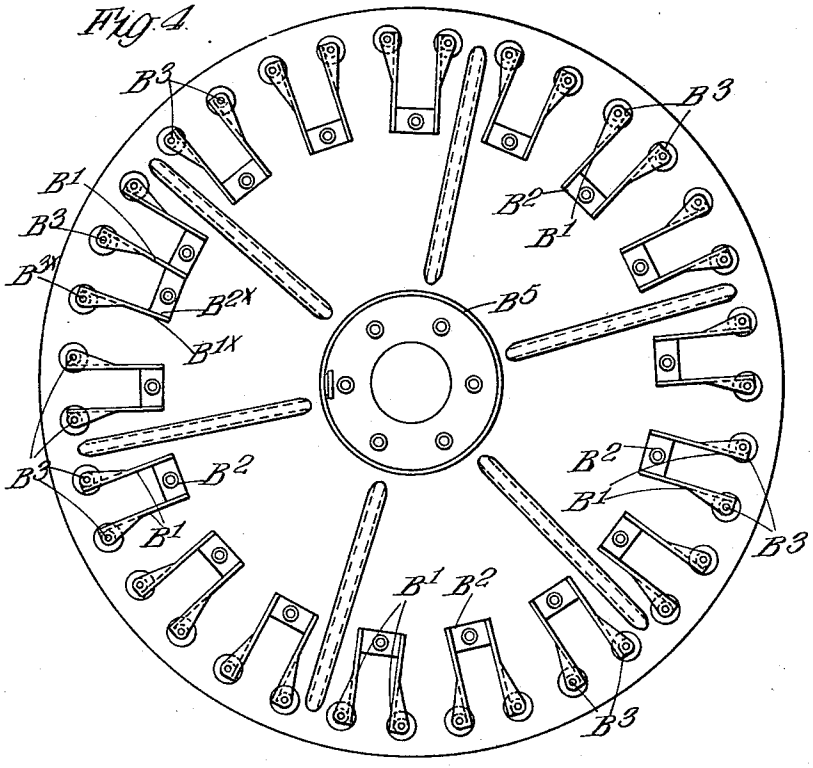
Fig. 4.



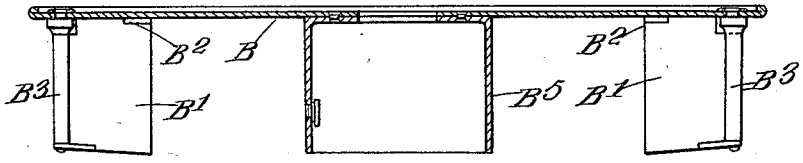


Fig. 5.

Fig. 6.

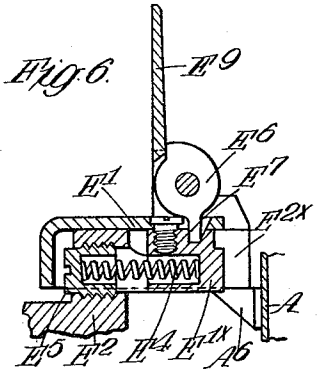
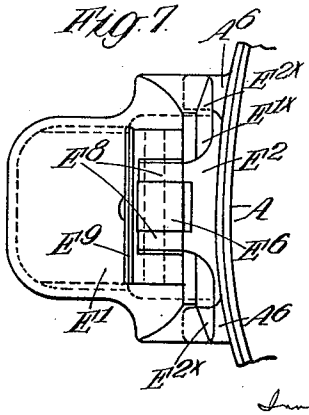


Fig. 7.



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Patented Feb. 23, 1932

1,846,034

UNITED STATES PATENT OFFICE

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DRUM MAGAZINE FOR MACHINE GUNS AND AUTOMATIC SMALL ARMS

Application filed January 13, 1931, Serial No. 508,401, and in Great Britain February 10, 1930.

This invention relates to drum magazines for machine guns and automatic small arms, the said magazines being of the kind comprising a stationary pan portion provided with a boss having a helical groove for the reception of the bullets of the cartridges, and with a helical support or a number (three for example) of communicating compartments, for the rim portions of the cartridges, the said cartridges being angularly displaced step by step during the working of the gun in order to bring them one at a time into a discharge opening in the base of the pan portion for engagement by the bolt of the gun, by means of a cover portion or impeller provided with spacing members carried thereby. These spacing members have heretofore been constituted by pins riveted to the said cover portion and it has been found that these are liable to become bent or broken during operation. The chief object of the present invention is to provide an improved construction of spacing members which will not be open to this objection.

According to the invention the spacing members are constituted by radially disposed walls which extend a substantial distance towards the axis of rotation of the cover portion or impeller and which form part of, or are rigidly secured to, the latter. In one construction the walls are constituted by the side members of U-shaped brackets rigidly connected to the cover portion and suitably spaced apart. Each of the said brackets and each of the spaces between them receives a cartridge. The transverse members of these brackets may be riveted to the cover portion and the outer part of each side member may receive a pin which extends the whole depth of the side member and is riveted to the cover portion. Alternatively the walls may be formed by milling or otherwise forming recesses or slots in a ring of substantial depth and thickness which is suitably attached to the cover portion, preferably by rivets extending through holes in the bases of the recesses or slots.

In order that the said invention may be clearly understood and readily carried into effect, the same will now be described more fully with reference to the accompanying drawings in which:—

Figure 1 is a vertical section showing a constructional form of drum magazine according to the present invention in position on a gun,

Figure 2 is a plan of Figure 1 with part of the cover portion or impeller removed,

Figure 3 is a perspective view of the magazine of Figures 1 and 2,

Figure 4 is a view on a larger scale of the under side of the cover portion or impeller of Figure 1,

Figure 5 is a vertical section of Figure 4,

Figure 6 is a section on a larger scale of the rear retaining catch shown in Figure 1,

Figure 7 is a plan of Figure 6, and

Figure 8 is a view of a modified construction of the spacing members.

A is the stationary pan portion of the magazine and B is the rotary cover portion or impeller. The said pan portion A has a hollow boss A^1 formed on its outer surface with a helical groove A^2 for the reception of the bullets of the cartridges and also has a number of communicating compartments A^3 for the rims of the cartridges as is well understood. In the example shown there are three such compartments and these may, if desired, be replaced by a helical support corresponding to the helical groove A^2. The rotary cover portion or impeller B has downwardly extending spacing members which, according to the present invention, are constituted by radially disposed walls which extend a substantial distance towards the axis of rotation of the cover portion; these walls, in the example shown by Figures 1 to 5, are constituted by the side members B^1 of U-shaped brackets the transverse members B^2 of which are riveted to the cover portion, whilst the outer part of each side member receives a pin B^3 which extends the whole depth of the side member and is riveted to the cover portion. Each of the said brackets receives a cartridge between its side members B^1 and the brackets are spaced so as to receive other cartridges in the spaces as shown in Figure 2. In the example shown the magazine is designed to receive 35 cartridges in

each compartment and in this case, and in all cases where the number is an odd one, a single-sided bracket is provided as well as the appropriate number of double-sided brackets; this single-sided bracket is shown at the left-hand side of Figure 4 (its side member, transverse member and pin being represented by $B^{1\times}$, $B^{2\times}$ and $B^{3\times}$) and if desired it may be made integral with its adjacent double-sided bracket. The aforesaid cover portion B is displaced by a spiral spring B^4 housed within the aforesaid hollow boss A^1. One end of the said spring is connected to a part B^5 which depends from the cover portion and fits within the said hollow boss and the other end of the spring is attached to a sleeve C surrounding an internal spigot A^4 within the boss A^1. This sleeve is normally connected to the said spigot by a catch or key C^1 and is provided with an actuating handle C^2. When the catch or key C^1 is moved into its disengaging position the spring B^4 can be wound up by means of the said handle C^2 after which the catch or key is operated to reconnect the sleeve C to the spigot A^4. The cover portion B is intermittently released, so that it can perform its step-by-step movement, by the removal of a cartridge from the pan portion A by the bolt D (Figure 1) of the gun during its forward movement. Each cartridge as it issues from a gap in the lower wall of the pan portion A is held by means of longitudinal guide members $A^\times$ (Figures 1 and 3) thereon until it is displaced forwardly by a spring-controlled pawl D^1 on the bolt; this pawl passes between the guide members $A^\times$ and when the cartridge comes clear of their forward ends the cover portion B can again move to bring another cartridge into position between the guide members, the pawl D^1 riding over this cartridge when the bolt moves rearward.

The drum magazine constructed as hereinbefore described has the lower part of the pan portion A formed at its front and rear with members A^5, A^6, A^6 for co-operating with spring controlled catches E, E^1 carried by the casing of the gun, these catches serving to hold the magazine in position on the gun without the necessity of providing the usual spigot or pin projecting from the casing. The front member A^5 is composed of a flat projection or lug engaging beneath the front spring controlled catch E which is preferably carried by the base portion of the rear sight of the gun, the edge of this projection or lug engaging with a corresponding recess in the catch. The rear members A^6, A^6 are constituted by two spaced projections or lugs which fit one on each side of part $E^{1\times}$ of the rear spring controlled catch E^1 which is carried by a bracket E^2 on the gun casing. this catch also having parts $E^{2\times}$, $E^{2\times}$ which engage with the upper surfaces of the said projections or lugs. The part $E^{1\times}$ engaging between the projections or lugs A^6, A^6 serves in conjunction with the catch E, to hold the magazine in the correct angular position and the parts $E^{2\times}$, $E^{2\times}$ engaging with the upper surfaces serve, also in conjunction with the catch E, to hold the magazine flat against the gun casing. In the construction shown the part $E^{1\times}$ is constituted by a block carried by the catch E^1 and recessed to receive one end of a helical compression spring E^4 the other end of which is housed in a plug E^5 screwed into the bracket E^2. As shown in Figure 6 the catch E and block E^3 are retracted by a member E^6 having an arm E^7 projecting into the catch and block; this member is pivoted to lugs E^8, E^8 on the bracket E^2 and may be operated by a flap E^9 pivoted to the said lugs by the pivot pin of the member E^6.

In the modified construction according to Figure 8, there is a metal ring B^4 of substantial depth and thickness in which a number of slots or recesses B^5 are produced, by milling or other operations, for the reception of the cartridges. The portions B^6 between these recesses form the aforesaid walls constituting the spacing members for the cartridges. The said ring is suitably attached to the cover portion or impeller preferably by rivets extending through holes B^7 in the bases of some of the recesses.

What we claim and desire to secure by Letters Patent of the United States is:—

1. In a drum magazine for machine guns and automatic small arms, the combination of a stationary pan portion, means on said pan portion for guiding the cartridges towards the discharge opening in the base of the pan portion, a movable cover portion, and brackets of U-shape projecting inwardly from said cover portion, the side members of said brackets extending a substantial distance towards the axis of rotation of the cover portion and constituting spacing members for the cartridges.

2. In a drum magazine for machine guns and automatic small arms, the combination of a stationary pan portion, means on said pan portion for guiding the cartridges towards the discharge opening in the base of the pan portion, a movable cover portion, brackets of U-shape projecting inwardly from said cover portion, the side members of said brackets extending a substantial distance towards the axis of rotation of the cover portion and constituting spacing members for the cartridges, rivets securing the transverse members of said brackets to said cover portion and a pin passing through the outer part of each side member, said pin extending the whole depth of the side member and being riveted to the cover portion.

3. In a drum magazine for machine guns and automatic small arms, the combination of a stationary pan portion, means on said pan portion for guiding the cartridges towards

the discharge opening in the base of the pan portion, a movable cover portion, a ring of substantial depth and thickness on the inner-side of said cover portion, said ring being formed with recesses or grooves to form radial walls which extend a substantial distance towards the axis of rotation of the cover portion and constitute spacing members for the cartridges, and rivets extending through holes in the bases of the recesses or grooves for attaching the ring to the cover portion.

4. In a drum magazine for machine guns and automatic small arms, the combination of a stationary pan portion, means on said pan portion for guiding the cartridges towards the discharge opening in the base of the pan portion, a movable cover portion, cartridge spacing members on said cover portion, a hollow boss on said pan portion, a spiral spring housed within said hollow boss, a part depending from the cover portion and fitting within said hollow boss which thus serves as a bearing for said part, a sleeve, one end of said spring being connected to said depending part and the other end to said sleeve, and means for detachably connecting said sleeve to said pan portion.

5. In a drum magazine for machine guns and automatic small arms, the combination with the elements claimed in claim 1, of a hollow boss on said pan portion, a spiral spring housed within said hollow boss, a part depending from the cover portion and fitting within said hollow boss which thus serves as a bearing for said part, a sleeve, one end of said spring being connected to said depending part and the other end to said sleeve, and means for detachably connecting said sleeve to said pan portion.

6. In a drum magazine for machine guns and automatic small arms, the combination of a stationary pan portion, means on said pan portion for guiding the cartridges towards the discharge opening in the base of the pan portion, a movable cover portion, cartridge spacing members on said cover portion, and longitudinal guide members, on the outer surface of the base of said pan portion for holding each cartridge as it issues from the discharge opening and guiding it during its forward movement for insertion into the gun.

7. In a drum magazine for machine guns and automatic small arms, the combination with the elements claimed in claim 1, of longitudinal guide members on the outer surface of the base of said pan portion for holding each cartridge as it issues from the discharge opening and guiding it during its forward movement for insertion into the gun.

8. In a drum magazine for machine guns and automatic small arms, the combination of a stationary pan portion, means on said pan portion for guiding the cartridges towards the discharge opening in the base of the pan portion, a movable cover portion, cartridge spacing members on said cover portion, a member on the front of the lower part of the pan portion for engaging with a spring-controlled catch on the gun casing, and a member on the rear of the lower part of the pan portion for engaging with another spring-controlled catch on the gun casing, said catches serving to hold the magazine in position without the necessity of providing the usual spigot or pin projecting from the gun casing.

9. In a drum magazine for machine guns and automatic small arms, the combination with the elements claimed in claim 1, of a member on the front of the lower part of the pan portion for engaging with a spring-controlled catch on the gun casing, and a member on the rear of the lower part of the pan porton for engaging with another spring-controlled catch on the gun casing, said catches serving to hold the magazine in position without the necessity of providing the usual spigot or pin projecting from the gun casing.

10. In a drum magazine for machine guns and automatic small arms, the combination of a stationary pan portion, means on said pan portion for guiding the cartridges towards the discharge opening in the base of the pan portion, a movable cover portion, cartridge spacing members on said cover portion, a flat projection on the front of the lower part of the pan portion for engaging beneath a spring-controlled catch on the gun casing, and two spaced projections on the rear of the lower part of the pan portion for engaging on each side of and also beneath another spring-controlled catch on the gun casing, said catches serving to hold the magazine in position without the necessity of providing the usual spigot or pin projecting from the gun casing.

11. In a drum magazine for machine guns and automatic small arms, the combination with the elements claimed in claim 1, of a flat projection on the front of the lower part of the pan portion for engaging beneath a spring-controlled catch on the gun casing, and two spaced projections on the rear of the lower part of the pan portion for engaging on each side of and also beneath another spring-controlled catch on the gun casing, said catches serving to hold the magazine in position without the necessity of providing the usual spigot or pin projecting from the gun casing.

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