

M. KNÖTGEN.

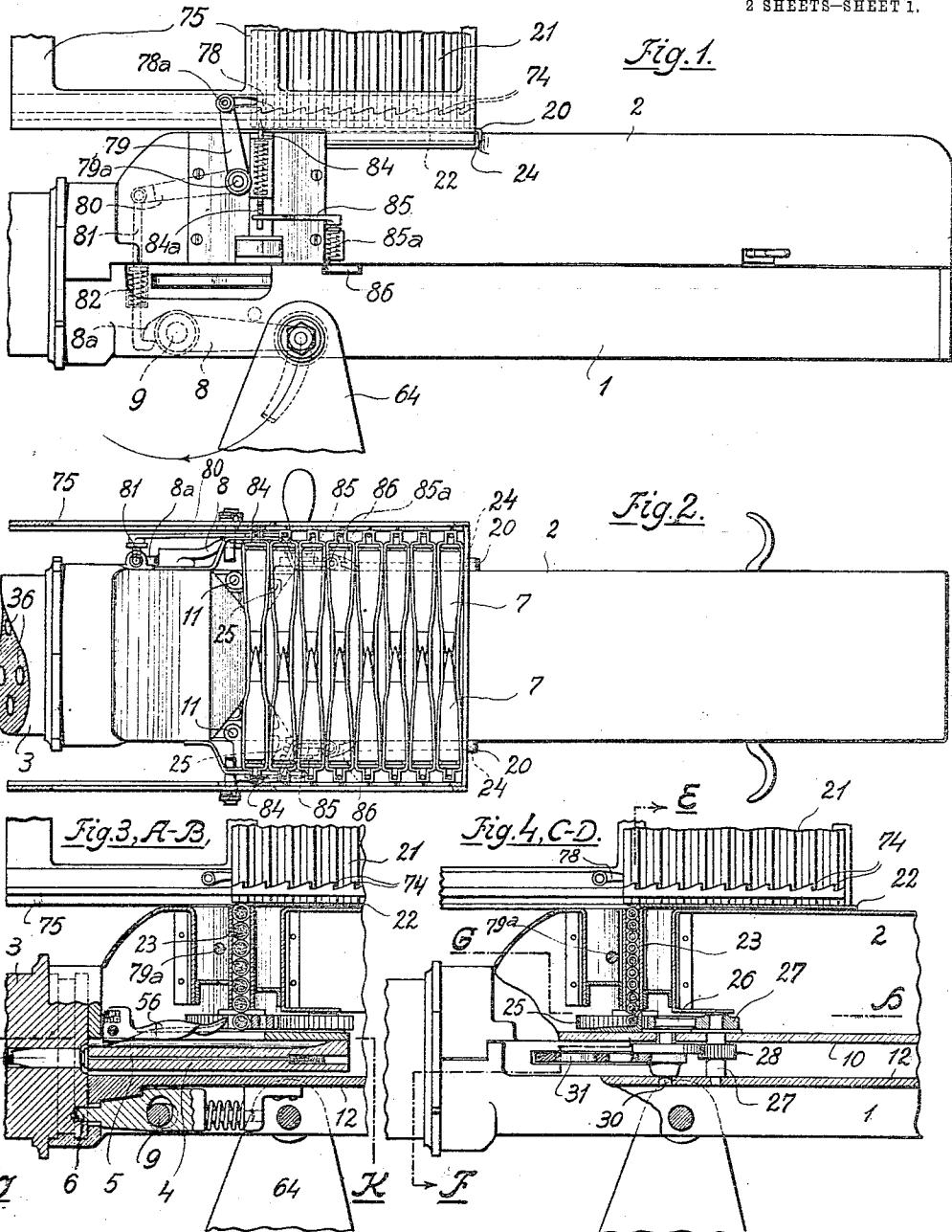
MACHINE GUN.

APPLICATION FILED MAY 6, 1912.

1,032,413.

Patented July 16, 1912.

2 SHEETS—SHEET 1.



Witnesses:
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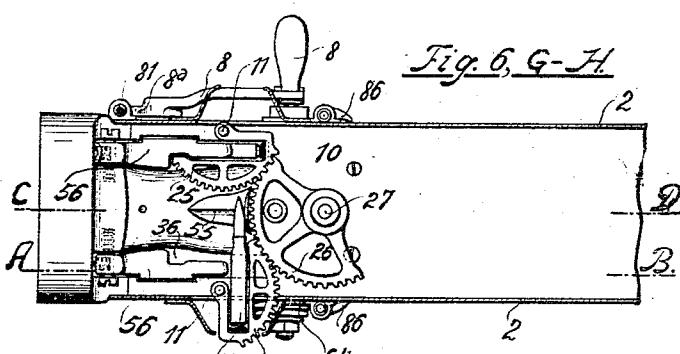
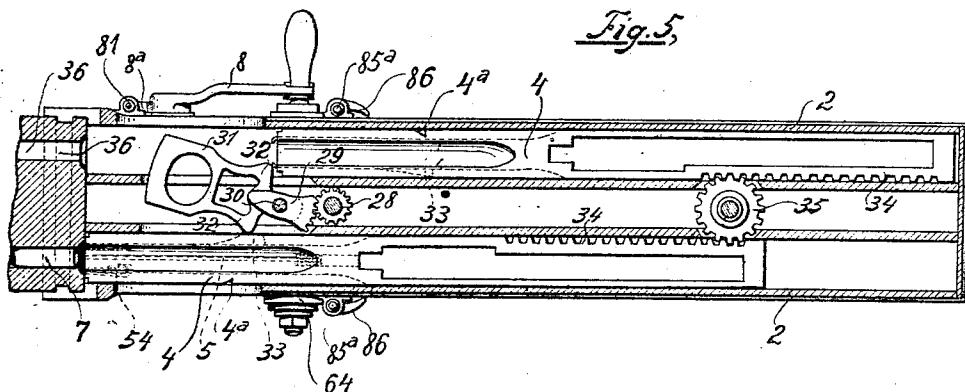
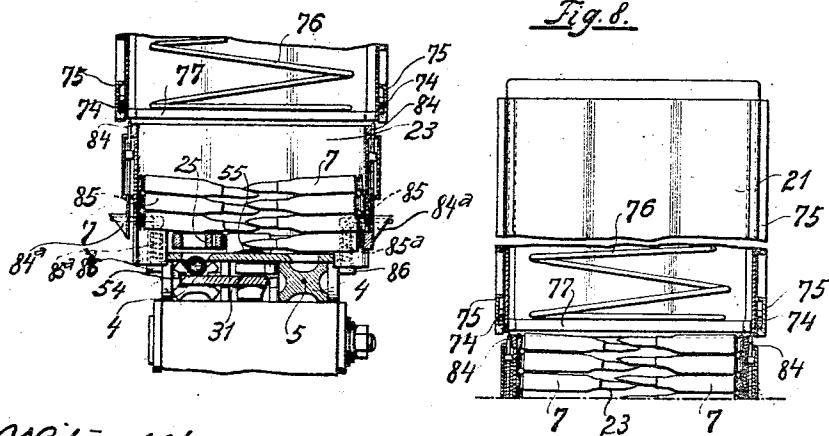


Fig. 7, E-F.



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UNITED STATES PATENT OFFICE.

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MACHINE-GUN.

1,032,413.

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Application filed May 6, 1912. Serial No. 695,389.

To all whom it may concern:

Be it known that I, MATHIAS KNÖTGEN, a citizen of the Empire of Germany, residing at Cologne-on-the-Rhine, in the Empire of Germany, have invented a new and useful Machine-Gun, of which the following is a specification.

My invention relates to improvements in machine-guns with two or more gun-barrels and two breeches, which are alternately moved forward for closing one barrel and backward for opening the other barrel while withdrawing the empty cartridge; and the objects of my improvement are, first, to provide beneath the magazine for the cartridges two opposite feeders adapted to alternately receive a cartridge from the magazine and to turn it under the action of the corresponding breech through an angle of 90° into the direction of the corresponding barrel; and, second to provide a device adapted to be alternately operated from either breech for turning the two feeders and the cartridge-ejector in one or the other direction. I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is an elevation of the improved machine-gun, a part of the revolver containing six barrels being broken away, Fig. 2 is a plan view of the same, a part being omitted, Fig. 3 is a vertical longitudinal section through the same on the line A—B in Fig. 6, Fig. 4 is a similar section through the same on the line C—D in Fig. 6, Fig. 5 is a horizontal section through the same on the line J—K in Fig. 3, Fig. 6 is a similar section through the same on the line G—H in Fig. 4, Fig. 7 is a vertical cross section through the line E—F in Fig. 4, seen in the direction of the arrows, and shows the lower end of the magazine, the two breeches and the cartridge-ejector, and Fig. 8 is a similar section and shows the upper end of the magazine and one of the cartridge receptacles, from which an intermediate part is omitted.

Similar characters of reference refer to similar parts throughout the several views.

The machine-gun comprises a box-like casting turnable in standards 64 and consisting of a base 1 and a cover 2, further a cylindrical revolver 3 turnable in the front end of the casing and containing several (in the present case six) parallel barrels 36, 36. In the base 1 are provided in the horizontal

central plane of the revolver 3 guides, in which two breeches 4, 4 of a cross section shown in Fig. 7 are longitudinally guided. Each breech 4 has a central longitudinal bore in which an igniting pin 5 (Figs. 5 and 7) is guided. The revolver 3 is in any known manner intermittently turned and then secured, so as to always bring two of its barrels (opposite to one another) into the axes of the two breeches 4, 4 (Fig. 5), so that either breech can close the opposite barrel and its igniting pin 5 can pierce the cartridge therein. The two breeches 4, 4 are on their rear parts provided with racks 34, 34 (Fig. 5) facing one another and a pinion 35 turnable on a pin in the base 1 is made to mesh with the two racks. The consequence of this is, that when one breech 4 is moved forward to close its barrel 36, the other breech is moved backward for opening the corresponding barrel 36 and withdrawing the empty cartridge by means of the springy hooks 54. I do not further describe the construction of the casing 1, 2, the revolver 3, the breeches 4, 4 and the parts for operating the revolver and breeches, as it is immaterial to my invention and may be of any known and approved kind.

On the cover 2 is disposed a suitable frame 75, into which a series of juxtaposed cartridge receptacles 21 (Fig. 1) can be introduced from the rear. In the present case the series is assumed to comprise ten receptacles 21, which are in any known manner connected together, for example by means of two racks 74, 74 (Fig. 8), which are guided in suitable grooves of the frame 75. Each receptacle 21 is open at the lower end and is adapted to contain a number (for example ten) of cartridges 7, 7, which are pressed downward by means of a spring 76 and a plate 77 guided in the receptacle. As is clearly shown in Figs. 7 and 8, the cartridges 7, 7 are superposed and alternately disposed in opposite direction, so that their points overlap one another. Normally all the receptacles 21 are below closed by a plate 22 (Figs. 3 and 4) serving as a bottom and capable of being withdrawn. This plate 22 has at the rear edge two pendent lugs 20, which are adapted to bear against suitable projections 24 (Fig. 1) provided on the cover 2, so that in this manner the bottom 22 is withdrawn, when in a manner to be hereinafter described the

series of receptacles 21 is fed forward, that is from the right to the left in Fig. 1. The front edge of the plate 22 is made to register with the inside of the rear wall of a magazine 23 (Figs. 2 and 4) provided in the cover 2, so that only the cartridges contained in any receptacle 21 above the magazine 23 can be pressed out of the receptacle into the magazine by means of the spring 76 and the plate 77. In the ends of the magazine 23 (Figs. 2 and 8) two vertical pins 84, 84 are longitudinally guided, which are pressed upward by helical springs surrounding them and are at their lower end made in one with two beveled-off noses 84^a (Fig. 1). On the outside of the cover 2 two vertical thin shafts 85^a are mounted to rock in suitable bearings and carry each above a crooked arm 85 (Figs. 1 and 2) and below a pawl 86. The two arms 85, 85 are pressed against the two beveled-off noses 84^a by means of helical springs surrounding the shafts 85^a and the two pawls 86, 86 are adapted to pass through suitable recesses in the base 1 and to engage in notches 4^a (Fig. 5) of the breeches 4, 4. A shaft 79^a (Fig. 1) is mounted in the cover 2 to rock and has fastened on its ends two parallel arms 79, which carry at the free end two pins 78^a that pass through slots in the frame 75 and carry two pawls 78 adapted to engage the two above mentioned racks 74, 74. One arm 79 is made in one with another arm 80 at right angles to it, the two arms 79, 80 forming a bell-crank lever. The arm 80 is pivotally connected with a vertical rod 81, which is longitudinally guided, is pressed upward by a helical spring 82 surrounding it and is hooked at its lower end. A known crank 8 is provided on the gun-casing 1, 2 and is turned downward in the direction of the arrow for releasing the revolver 3 by withdrawing a bolt 6 (Fig. 3) by means of its cranked shaft 9, prior to the turn of the revolver from one barrel to the other. This crank 8 is also utilized for feeding the series of receptacles 21 forward as follows. It is provided on its nave with a nose 8^a adapted to work with the hooked end of the rod 81. Each time that the crank 8 is turned downward for releasing the revolver 3, its nose 8^a permits the rod 81 to move upward under the action of the spring 82, so that the two pawls 78 move to the rear and each ride over the back of one tooth of the racks 74 and snap behind it. When the crank 8 is again turned upward for locking the revolver 3 after its turn, of course the two pawls 78 engaging the two racks 74, 74 will feed the series of receptacles 21 one receptacle forward, so that a receptacle 21 filled with cartridges will move from the bottom 22 over the magazine 23 and replace the preceding receptacle now empty. The spring 76 with

the plate 77 (Fig. 8) in the filled receptacle will feed the cartridges both in the receptacle and in the magazine 23 downward as they are used. When no more cartridges are left in the receptacle 21, its plate 77 will depress the two spring-pressed pins 84, 84, so that their beveled-off noses 84^a will turn the two arms 85, 85 outward and the pawls 86, 86 inward, when the latter by engaging in the notches 4^a (Fig. 5) will stop the two breeches 4, 4. Therefore the two breeches will be prevented from moving, so that neither of them can close the corresponding barrel, whereby otherwise the revolver 3 would be prevented from turning. The operator perceiving this will then turn the crank 8 downward for releasing the revolver 3, which can be then turned forward in any known manner for replacing the hot barrels by cool ones that can be now charged with cartridges one after the other, whereupon the crank 8 is again turned upward and thereby the series of receptacles 21 is fed forward for moving a filled receptacle over the magazine 23. Thereby of course the two spring-pressed pins 84, 84 (Fig. 8) are again released, so that they move upward and the two pawls 86, 86 are under the action of the springs 85^a withdrawn from the notches 4^a of the two breeches 4, 4, which are then set at liberty and can be operated as usual, until the receptacle 21 is empty and the two breeches 4, 4 are again stopped, whereupon the whole series of occurrences repeats.

A plate 10 in the gun-casing 1, 2 is provided with two pins 11, 11 (Fig. 6), on which two toothed segments 25, 25 are mounted to rock beneath the magazine 23 (Fig. 2). These segments are each provided with a slot for receiving one cartridge 7 from the magazine and serve as feeders. The two feeders 25, 25 mesh with another toothed segment 26 fastened on the upper end of a vertical shaft 27 which rocks in the two superposed plates 10, 12 and carries between them a pinion 28 (Figs. 4 and 5). Parallel to the shaft 27 is another rocking shaft 30, which is rigidly connected with a toothed segment 29 and a cartridge-ejector 31. The segment 29 meshes with the pinion 28 and the ejector 31 is provided with two opposite shoulders 32, 32. The two breeches 4, 4 are on their opposite sides each provided with a cam 33, which is adapted to strike one shoulder 32 of the ejector 31 and thereby to turn the latter. The two feeders 25, 25 are so geared together, that when one of them occupies one extreme position and its slot is ready to receive one cartridge 7 from the magazine 23, the other feeder 25 occupies its other extreme position and its slot holds a cartridge 7 in the vertical central plane of the corresponding barrel 36, as is clearly shown in Fig. 6. The plate 10 is on

its upper face provided with a cam 55 (Figs. 4 and 6) for supporting and guiding the point of the respective cartridge 7. The plate 10 is provided with two slots in which 5 two spring-pressed curved receivers 56, 56 (Figs. 3 and 6) are mounted to vertically rock. Each receiver 56 is adapted to bear under the action of its spring from above against the cartridge 7 in the respective 10 feeder 25 when turned into the vertical plane of the barrel 36 and to press the cartridge downward for inserting its head between the spring hooks 54 of the corresponding breech 4. Then the latter can during its forward motion introduce the cartridge 7 into the barrel 36, after which the igniting pin 5 is 15 operated as usual.

When after firing the empty cartridge 7 is withdrawn from the barrel 36 by means 20 of the hooks 54 of the breech 4 moved rearward, the nose 33 on the other breech 4 simultaneously moved forward will strike the corresponding shoulder 32 of the ejector 31 and thereby turn the latter, which will then 25 eject the empty cartridge by forcing it off the springy hooks 54 and, throwing it through an opening (not shown) of the gun casing 1, 2. At the same time the ejector 31 will by means of the toothed segment 29, the 30 pinion 28, the shaft 27 and the toothed segment 26 turn the two feeders 25, 25 through an angle of 90° into their other positions, so that the cartridge 7 discharged from the magazine 23 into the slot of one feeder 25 is 35 turned into the vertical plane of the corresponding barrel 36 and the slot of the other feeder is turned back into the plane of the magazine 23 for receiving the next following cartridge.

40 I claim:

1. In a machine-gun of the class described, the combination with a gun-casing, of barrels attached to said gun-casing, a magazine for superposed cartridges in said gun-casing 45 at right angles to said barrels, two feeders turnable in said gun-casing beneath said magazine and adapted to alternately receive therefrom one cartridge, and means for simultaneously turning said two feeders in either direction through an angle of 90° so as to turn one feeder charged with the cartridge from the plane of said magazine into the vertical plane of the corresponding barrel and to move the empty other feeder back 50 into the plane of the magazine.

2. In a machine-gun of the class described, the combination with two parallel guides, of two breeches movable in said two guides, means for positively moving said two breeches in opposite directions, barrels adapted to be severally brought into line with said two breeches, a vertical magazine for superposed cartridges at right angles to said barrels, two opposite feeders turnable 55 beneath said magazine and adapted to alter-

nately receive therefrom one cartridge, and means operated from said two breeches for simultaneously turning said two feeders in either direction through an angle of 90° so as to turn one feeder charged with the cartridge from the plane of said magazine into the vertical plane of the corresponding barrel and to move the empty other feeder back into the plane of the magazine.

3. In a machine-gun of the class described, the combination with a gun-casing of two parallel breeches guided in said gun-casing, means for positively moving said two breeches in opposite directions, a revolver comprising a plurality of barrels and adapted to be intermittently turned on said gun-casing so as to bring the barrels severally into line with said two breeches, a vertical magazine in said gun-casing at right angles to said barrels and adapted to vertically 85 guide superposed cartridges which are alternately placed in opposite directions so that their heads are in close proximity of the narrow walls and their points overlap one another, two opposite feeders turnable in said gun-casing beneath said magazine and adapted to alternately receive therefrom one cartridge, and means operated from said two breeches for simultaneously turning said two feeders in either direction through an angle 90° so as to turn one feeder charged with the cartridge from the plane of said magazine into the vertical plane of the corresponding barrel and to move the empty other feeder back into the plane of the magazine.

4. In a machine-gun of the class described, a cartridge feeder consisting of a turnable toothed segment having a slot extending from one end across the central line 105 to a point near the other end, said slot being between the series of teeth and the fulcrum and adapted to receive a cartridge.

5. In a machine-gun of the class described, the combination with a gun-casing, 110 of two parallel breeches guided in said gun-casing, means for positively moving said two breeches in opposite directions, a cartridge-ejector turnable in said gun-casing, and two cams on said two breeches adapted 115 to alternately strike said cartridge-ejector and to turn it to the side of the other breech moving rearward, and to eject the empty cartridge withdrawn by the latter.

6. In a machine-gun of the class described, the combination with a gun-casing, of two parallel breeches guided in said gun-casing and provided with two cams on their sides facing one another, means for positively moving said two breeches in opposite 125 directions, and a cartridge-ejector turnable in said gun-casing and adapted to eject an empty cartridge from the front end of either of said two breeches, said ejector having two opposite shoulders adapted to be alternately 130

struck by the two cams of said two breeches whereby the ejector is turned for effecting the ejection.

7. In a machine-gun of the class described, the combination with a gun-casing, of two parallel breeches guided in said gun-casing and provided with two cams on their sides facing one another, means for positively moving said two breeches in opposite directions, an ejector turnable in said gun-casing and adapted to eject an empty cartridge from the front end of either of said two breeches, said ejector having two opposite shoulders adapted to be alternately struck by the two cams of said two breeches whereby the ejector is turned for effecting the ejection, a small toothed segment rigidly connected with said ejector, a shaft turnable in said gun-casing and having fastened on it a pinion meshing with said small toothed segment, a large toothed segment on said shaft, barrels attached to said gun-casing, a

vertical magazine for superposed cartridges in said gun-casing at right angles to said barrels, and two feeders turnable in said gun-casing beneath said magazine and adapted to alternately receive therefrom one cartridge, said two feeders having gear teeth whereby they mesh with said large toothed segment, said two toothed segments, said pinion and the gear teeth of said two feeders being so proportioned that said ejector on being actuated by either cam turns said two feeders through an angle of 90° so as to turn one feeder charged with the cartridge from the plane of said magazine into the vertical plane of the corresponding barrel and to move the empty other feeder back into the plane of the magazine.

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Witnesses:

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