(No Model.) 2 Sheets—Sheet 1.

C. M. BRODERICK & J. VANKEIRSBILCK.

MACHINE GUN.

No. 504,517. Patented Sept. 5, 1893.

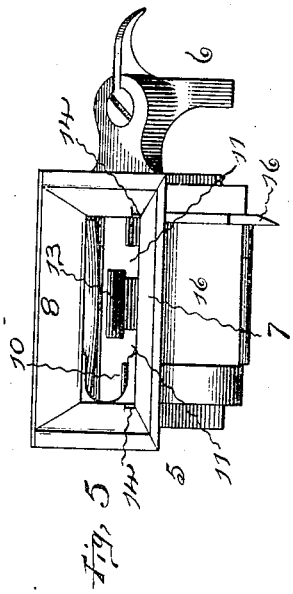

Fig. 5.

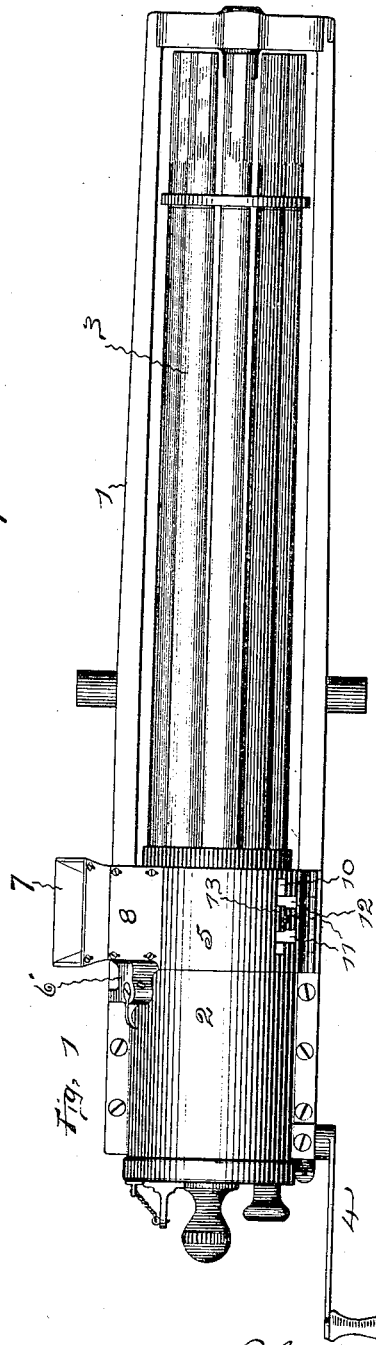

Fig. 1.

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(No Model.) 2 Sheets—Sheet 2.

C. M. BRODERICK & J. VANKEIRSBILCK.

MACHINE GUN.

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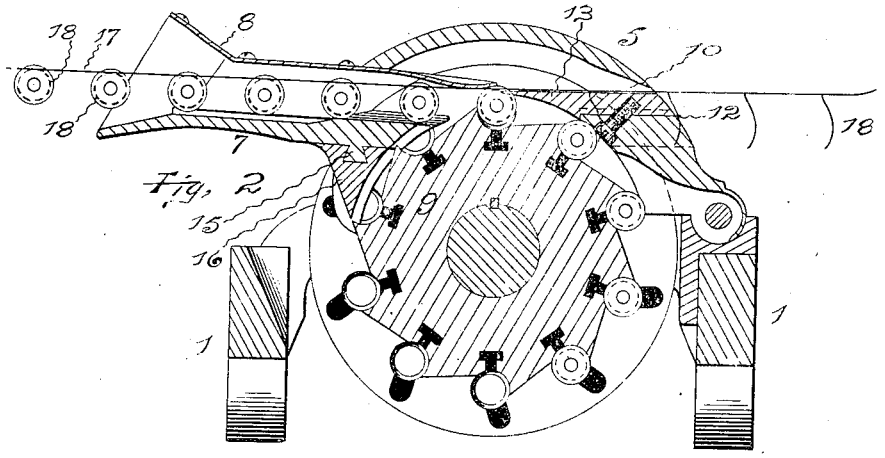

Fig. 2

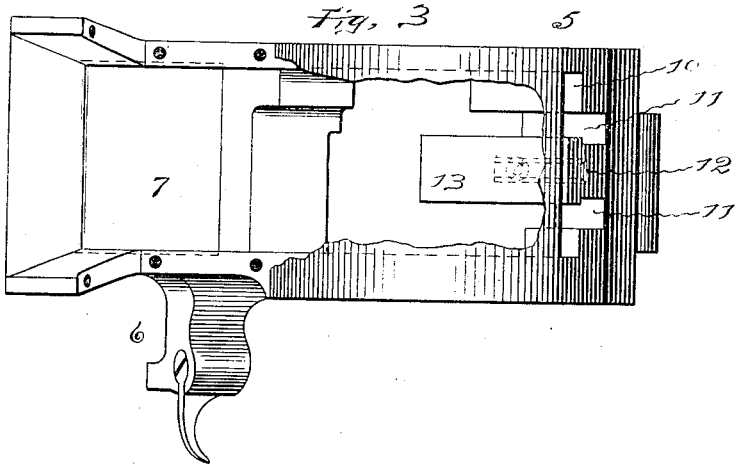

Fig. 3

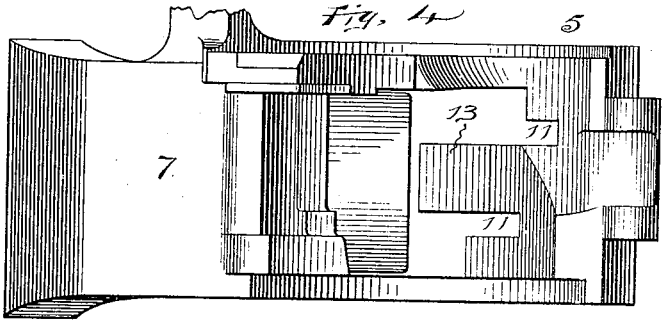

Fig. 4

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UNITED STATES PATENT OFFICE.

CLEMENT M. BRODERICK AND JOHN VANKEIRSBILCK, OF HARTFORD, CONNECTICUT, ASSIGNORS TO THE GATLING GUN COMPANY, OF SAME PLACE.

MACHINE-GUN.

SPECIFICATION forming part of Letters Patent No. 504,517, dated September 5, 1893.

Application filed February 4, 1893. Serial No. 461,022. (No model.)

To all whom it may concern:

Be it known that we, CLEMENT M. BRODERICK and JOHN VANKEIRSBILCK, citizens of the United States, residing at Hartford, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Machine-Guns, of which the following is a full, clear, and exact specification.

The invention relates to the class of guns commonly known as Gatling guns, and the object is to so construct such a gun that the cartridges may be fed by metallic strips positively and accurately with great rapidity to the revolving carrier in front of the reciprocating locks, regardless of the angle of elevation or depression of the gun, the arrangement being such that while a strip cannot be inserted wrongly into the gun when it does enter a cartridge will be surely and absolutely pulled from it and caused to enter the space behind the breech of each barrel in turn as presented according to the speed of revolution of the barrels.

To this end the invention resides in details of the construction of the part known as the hopper, whereby the strips described and claimed in our application, Serial No. 455,555, can be utilized and fed to the gun, as more particularly hereinafter described and pointed out in the claims.

Referring to the accompanying drawings: Figure 1 is a plan of the gun provided with the improvements. Fig. 2 is an enlarged transverse section of the gun through the hopper. Fig. 3 is a plan of the hopper with a part of the top cut away to show the construction. Fig. 4 is a bottom view of the hopper, and Fig. 5 is a view looking into the hopper.

In the views, 1 indicates the frame of a Gatling gun of ordinary form and construction having the usual breech casing, 2, group of rotary barrels, 3, and crank, 4, for revolving the barrels.

At the rear of the barrels, just in front of the breech casing is a hopper, 5, which is hinged to one side of the frame and provided with a catch, 6, at the other side so that it may be lifted to uncover the breech of the barrels, as in the common Gatling gun. Cut through one side of this hopper is an opening of a size that will admit of the passage of cartridges, and projecting from the side of the hopper beneath this opening is a shelf, 7, with flanged sides, for guiding the cartridges into the opening. This opening through the walls of the hopper from the exterior to the interior, as will be seen in Fig. 5, is wider at the edge toward the butt than at the edge toward the barrels—that is, the back of this opening is large enough to admit the passage of the rims of the cartridges, while the front is only large enough to allow the balls to pass. By means of this construction, if the strips are wrongly presented during the excitement of action, either upside down or end for end, they cannot be thrust into the gun for they will not be able to enter. On the top of the sides of this guiding shelf is placed, and preferably held by screws, a thin plate, 8, formed of spring metal, the inner end of which plate is a spring and extends into the interior of the hopper to a position nearly over the center of the carrier cylinder, 9, which is of the ordinary form. The inner end of this plate, which has elasticity, is preferably concaved so as to bear down with a yielding pressure upon the middle of the backs of the cartridge feed strips when they are passed through the gun, but while yielding for any inequalities, unevenness or vibrations, this plate holds the strips down so that the wedge will remove the cartridges from the prongs. A narrower opening, 10, is made from the interior to the exterior of the hopper through the side opposite to the cartridge opening, and in the walls of the hopper on the lower side of this opening the mortises, 11, are cut. Along the middle of the bottom wall of this opening a dove-tail tenon, 12, is made (Figs. 2 and 3) and slipped on this and secured by means of a screw is a hard metal wedge, 13. The upper surface of this wedge is almost flat while the lower surface increases in thickness approximately on the arc of revolution of the perimeter of the carrier cylinder, 9. The point of the wedge is adjusted into a position very near the end of the spring plate that projects from the opposite side, but of course the point of the wedge is slightly

below the end of the plate. The plate may also be made adjustable by forming slots for the passage of the screws that hold it in position so that when the screws are loosened the plate may be moved slightly in or out. The lower inner corners of the walls of the shelf are provided with grooves, 14, (Fig. 5) and at any time if it is desired to extend the surface of this shelf a plate or trough may be inserted into these grooves. The under side of the shelf, 7, has a dove-tail tenon, 15, (Fig. 2) and on this is slipped and secured the guard, 16, which throws out the cartridges that have been forced from the lock blocks and carrier by means of the usual plow, 16, (Fig. 5.) The rest of the gun is made as the common form of Gatling gun. The feed strips, 17, used with this gun are cut of indefinite length from thin metal that has some resiliency, and they are provided with rows of tongues that are bent outward to form circular prongs, 18, which encircle and hold the cartridges. The front end of the strips are so bent that they will not engage the end of the wedge but pass above it and out through the narrow opening after the cartridges have been pulled from the prongs by the wedge. The front edge of the opening in the hopper is shaped so as to be only large enough for the passage of the balls of the cartridges, and not of a size that will admit the rims in order to prevent any chance of the strips being inserted into the hopper wrongly which would clog the mechanism and disable the gun. The strips can only be inserted right end first, and as the successive edges of the grooves in the carrier cylinder come around when the gun is in action they engage the successive cartridges and push them forward until the wedge pulls them from the grasp of the prongs. The strips then pass out through the narrow part of the opening, the prongs traveling through the mortises below, while the cartridges drop into the grooves of the carrier cylinder and are fed to the barrels by the forward movement of the reciprocating locks. The plate which covers the cartridge opening into the hopper and extends to the center is curved and somewhat elastic so as to bear upon the top of the strips with a yielding pressure and hold them in position, but while giving to inequalities and unevenness it holds the strips so that the wedge will surely pull the cartridges as they are presented from the grasp of the prongs. The wedge is easily adjusted so that it may be made to come into the exact position to pull the cartridges from the strips, and is removable at any time so it can be sharpened, cleaned or replaced with a new wedge should it become damaged.

The whole hopper is simple, cheap and readily adjustable so that the metallic plates referred to holding the cartridges may be surely and positively fed through the gun during action with great rapidity without any danger of mis-firing or disabling the gun.

We claim as our invention—

1. In combination with the frame of a machine gun, a hopper hinged at one side to the frame and provided with a catch at the opposite side, said hopper having an opening through it for the passage of feed strips bearing cartridges, a yielding plate covering the top of the opening for a portion of the distance through the hopper, and a wedge for removing cartridges from the strips, substantially as specified.

2. In combination with the frame of a machine gun, a hopper hinged at one side to the frame and provided with a catch at the opposite side, said hopper having an opening through it for the passage of feed strips bearing cartridges, and a wedge adjustably secured to a portion of the hopper below the path of the strips but in the path of the cartridges, substantially as specified.

3. In combination with the frame of a machine gun, a hopper hinged at one side to the frame and provided with a catch at the opposite side, said hopper having an opening through it for the passage of feed strips bearing cartridges, a yielding plate covering the top of the opening for a portion of the distance through the hopper, and an adjustable wedge secured to a portion of the hopper below the path of the strips but in the path of the cartridges, substantially as specified.

4. In combination with the frame of a machine gun, a hopper hinged at one side to the frame and provided with a catch at the opposite side, said hopper having an opening through it for the passage of feed strips bearing cartridges, the front part of said opening being narrower than the diameter of the butts of the cartridges used, a plate covering the top of the opening for a portion of the distance through the hopper, and a wedge secured to a portion of the hopper below the path of the strips and in the path of the cartridges, substantially as specified.

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