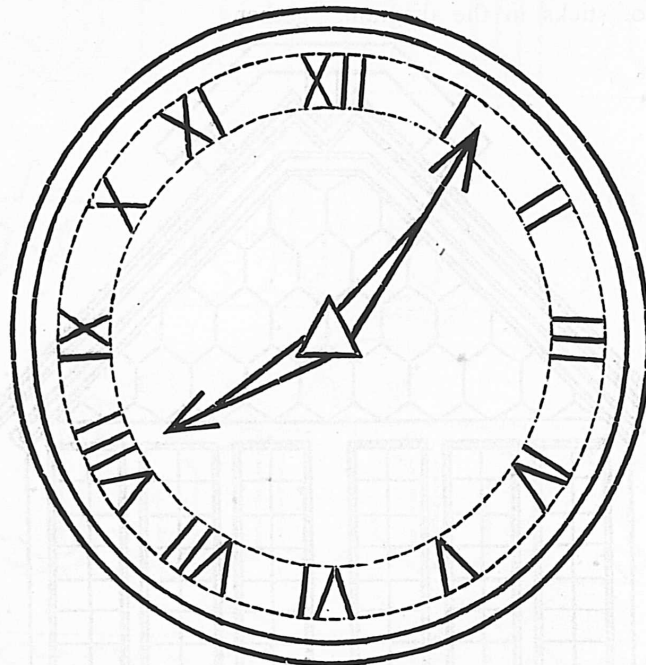


It is recorded of one of the greatest authors in the literature of Fancy that, when a child, he loved best his "box of bricks." He built farmhouses, castles, and palaces—

his own invention ever lending new charms to the capabilities of his toy: his imagination peopling his miniature edifices with beings equally of his own creation. For

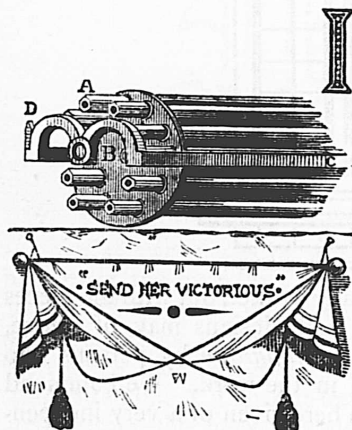


the poor, joyless children in whose interest these lines are written the box of bricks is an unattainable luxury. If, then—and I think I have shown that it is the case—the pieces

of firewood will very well supply the place of the richer child's wooden bricks, let the half-penny bundles serve the children's purpose first, and that of lighting the fires afterwards.

THE GUN OF THE AGE.

BY CAPTAIN E. ROGERS  
(LATE 3RD W. I. REGIMENT).



A. Muzzles of the Gatling.  
B. Front circular plate.  
C. Framework.  
D. Foresight.

which might least of all be supposed to

IT may be a remarkable coincidence, or merely a perversity of genius, that men of a different calling more frequently than otherwise devote themselves to the pursuit of a science, or the practical adaptation of a principle,

fall in their way. We might multiply instances of the anomaly in every branch of knowledge and of industry; but let it suffice to say that the machine-gun, which engages our present attention, will be found no exception to the exception—if it be not the rule—that invention requires no specialty.

The American gentleman who gives his name to the particular modification of mitrailleuse under consideration is a doctor of medicine, not of divinity—as has been stated by a writer in one of our military contemporaries; and so far back as 1861, he conceived the idea of a compound gun—i.e., a collection of barrels arranged around a central shaft, and placed in combination with grooved chambers, each barrel being furnished with its own lock mechanism, designed to work independently, but with continuous regularity, through the play of internal pinions actuated by a crank handle at the will of the operator.

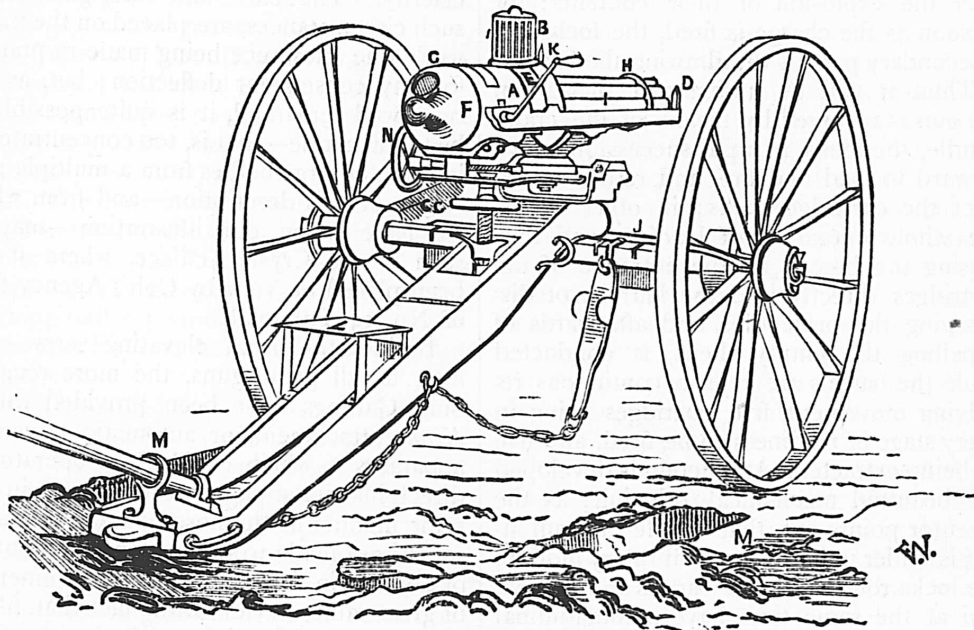
His first attempts at constructing the gun were naturally rude and imperfect; but well

might the good people of Indianapolis have gazed amazedly at the ugly-looking weapon as it poured forth round after round—200 a minute—under the manipulation of their inventive townsman.

From this moment the fame of the Gatling Battery became noised abroad; and although the very first batch of guns on the new principle, together with numerous patterns and drawings, were destroyed at a fire in the city of Cincinnati in the following year, the indefatigable and enterprising doctor soon produced fresh plans, and double the number of the guns consumed were

rapidly manufactured at another establishment in the same city. The result of their trial was in every instance a gratifying success, which culminated in the adoption of the arm officially by the United States Government in 1866.

During these years of repeated experiments with his machine-gun—the chrysalis period of its existence, so to speak—Dr. Gatling made no effort to suppress the secret of its mechanism; but, on the contrary, we are told, “he published full descriptions of the gun, with cut and diagrams, and sent them to all parts of the civilized world.”



- |                                                            |                                                                                  |
|------------------------------------------------------------|----------------------------------------------------------------------------------|
| A. Breech-casing.                                          | H. Front circular plate.                                                         |
| B. Drum.                                                   | I. Barrels.                                                                      |
| C. Elevating screw.                                        | J. Cartridge boxes.                                                              |
| D. Foresight.                                              | K. Thumb-nut.                                                                    |
| E. Hopper.                                                 | L. Foot-stand.                                                                   |
| F. Cascable plate.                                         | M. Shelving trench (two feet deep) into which to lower the gun when not engaged. |
| G. Plugged orifice to reach a damaged lock when necessary. | N. Automatic traversing screw.                                                   |

Presuming that the inventor's liberality has been thus widely appreciated, and that the internal structure of the gun has been seen and understood, we will not on this occasion enter upon a purely technical description, but refer curious readers to the minutiae contained in articles on the subject, published in the "Journal of the United Service Institution" (1870), "Colburn's United Service Magazine" (1871), and to the several notices of it in the daily and weekly press.

To offer some sort of account is, however,

incumbent on us, so as to initiate the uninstructed into the mysteries involved by this novel many-slayer; but we shall endeavour to be as brief and intelligible as the nature of the subject will allow. With the aid of our illustration, it will be at once apparent that the gun is composed of ten rifled barrels, supported near the muzzle by a circular plate, and screwed into another at the breech, both of which plates are rigidly fastened upon and to a main revolving shaft, which is itself journaled in front into the frame that supports the entire apparatus,

and in its rear end into a diaphragm within the breech-casing. This rear-casing conceals from view the lock mechanism and cocking device; but the hinged hopper, or brass curved plate with an aperture, may be noticed, down which the cartridges glide successively from the feed-case or drum into a grooved carrier, where they are taken instant possession of by the locks, forced into their appropriate barrels, and discharged in a continuous stream by impact of the needle. On the under-side of the breech-casing, and out of view, is an opening or shoot, whence the cartridge shells emerge after the explosion of their contents; for as soon as the charge is fired, the locks act a secondary part in withdrawing the cases.

Thus, it will be understood that when the gun is revolved by means of the crank handle, the locks, in rapid succession, move forward to load and fire, and return to extract the cartridge shells; in other words, the whole operation of loading, and thus closing the breech by the entrance of the cartridges directly into the barrels, of discharging the projectiles, and afterwards of expelling the empty shells, is conducted while the barrels are kept in continuous revolving movement, five cartridges being in every stage of readiness to be fired, and five of being extracted. And herein is developed the beautiful mechanical principle, as the inventor points out, that "while the gun itself is under uniform constant rotary motion, the locks rotate with the barrels and breech, and at the same time have a longitudinal reciprocating motion, performing the consecutive operations of loading, cocking, and firing without any pause whatever." One other apt quotation will suffice to illustrate familiarly this peculiarity of double action, which governs the firing capabilities of the gun:—"A sheet of paper cannot be printed in a cylinder press unless the cylinder be rotated, nor can a shot be fired from the Gatling gun except when the barrels and locks are rotated."

Above the breech in the smaller guns is pivoted a feed-drum or cylinder, as in our illustration, divided into sixteen compartments, each containing twenty-five cartridges, all of which rounds may be discharged within one minute of time! This drum is revolved by the manipulation of the left hand, while the right is engaged with the crank-handle. Two artillerists are, therefore, only required to work the gun—one man to

stand by with a refilled drum or feed-case, to replace the empty one, and the other to lay, load, and fire the piece by the revolution of the crank-handle. In fact, the Gatling may be simply and briefly described as an ingenious device for obtaining an accurate, concentrated, and continuous fire of small-arms, with the fewest number of men to direct and sustain it. The feed-drum will, we believe, supersede the use of metal feed-cases in all the Gatlings manufactured for present use in the army; and it would certainly appear to be the most feasible and the readiest mode of loading with ease and celerity. The back and foresights, under such circumstances, are placed on the framework, due allowance being made in practice for any consequent deflection; but, as has been well remarked, it is quite possible to be too accurate—that is, too concentrated—in firing at large bodies from a multiple gun. A gun of this description—and from which we have taken our illustration—may be seen at the Crystal Palace, where it has been placed on view by Colt's Agency firm, of No. 14, Pall-mall.

Besides the usual elevating screw common to all great guns, the more recently built Gatlings have been provided with a *Kinne* attachment, or automatic traversing apparatus *n*, which enables the operator to direct his fire along a front of  $12^\circ$ , in the same manner as the hose of a fire engine is sometimes made to sweep along the frontage of a house in flames. This improvement is of great value, in view of the fact that, as recoil is reduced to minimum by reason of the separate discharge, shot by shot, of each round—the effect of which is *entirely* overcome by the weight of the gun and carriage—it follows that, when once the machine is properly laid as to true elevation, it will perform its deadly functions with the certainty of an automaton. The advantages claimed for the Gatling are, indeed, that while there is no escape of gas at the breech, and no recoil which can destroy its unerring precision, it performs the operations of loading, firing, and extracting the case by simply revolving the crank "automatically, uniformly, and continuously."

But there are other and more general advantages rightly ascribed to this machine-gun that may be thus enumerated:—

1st. The locks, which form an essential part of the mechanism, are removable at pleasure through an opening in the cascable

and diaphragm plates at the butt end G; nor, when a damaged lock is subtracted for repair, need firing be discontinued.

2nd. The several parts of the gun are interchangeable; and, better still, they are simple and few.

3rd. The barrels, having space between them for free circulation of air and radiation of heat, will not heat and foul quickly under the rapidity of fire they must be subjected to in a lengthy day's fighting.

4th. The rifled small-bore barrels for the medium and smaller sized guns are made proportionately strong, so as to admit of heavier charges than ordinary ones, which advantage implies greater initial velocity, a flatter trajectory, more extensive range, and, consequently, increased accuracy and more terrible man-killing power than that attainable by any other like species of arms of precision.

5th. The barrels are constructed of any calibre suitable to the ammunition in general use; or—as in the larger-sized gun of inch calibre—shell, case-shot, or solid projectiles weighing half a pound, can be employed at ranges that hitherto belonged only to rifled field-pieces.

6th. The cartridge shells are manufactured by the aid of machinery, out of sheet metal one-tenth of an inch thick, waterproof, and solid enough to withstand the rough usage incidental to a campaign, and capable of being reloaded forty or fifty times, the first cost being estimated at sixpence each only! Besides, loading machines can be carried with the gun into action; and in this way the supply can be made to meet the demand without encumbrance.

7th. The weight of the gun and carriage is comparatively light, rendering it capable of being drawn by two horses only, when four or six are required for the lightest field-piece.

8th. The absence of recoil, and having no nerves to disturb in the act of taking aim, permit of a continuously accurate fire in the midst of the smoke of battle or in the darkness of the night; while the moral effect produced in repelling an assault by the fact of there not being a second of time for the assailants to advance between the discharges, cannot be over-estimated.

9th. The lives of three or four men at most need only be exposed; and the results attained can only be measured by the exposure of as many hundred men armed with ordinary rifles.

In each and all of these nine points, the Gatling machine-gun stands unrivalled; and it is matter for congratulation that our Government has shown itself wisely provident in adopting so indispensable an adjunct to future warfare, and to meet the emergencies and requirements of the day.

For the present, we believe, thirty-six Gatlings, at a cost of less than £10,000, will be delivered for service in the army; twenty-four of them, of .57-inch calibre, being employed as field pieces, while the remaining twelve, of the medium .75 pattern, will be issued to garrison batteries or placed in fortifications.

Constructed, as they have been, at the Elswick Works, under the supervision of the Ordnance select committee, there is every reason to suppose that they will have received a superior finish, likely to develop the principle of the gun to its utmost capacity. But there is a special feature in the improved Gatling hitherto unapplied, although the idea is by no means a novel one. We mean the addition of a thin steel screen, to be affixed to the frame-work in front of the feeding drum, for the joint protection of it and the party working the gun; as also a similar one for the limber. This may or may not answer the desired purpose; but, failing it, we are told of an invention by which atmospheric pressure is used as a motor for giving a gun elevating or depressing action, above and below the parapet, characteristic of the Moncrieff principle, and this is specially applicable to the Gun of the Period. Such an invention would, however, necessarily complicate matters; and we were glad to learn from Captain Moncrieff that no apparatus of the kind need be introduced, as the system of counter-balance is quite as applicable to the Gatling as any other gun. But the simplest method of all is to dig a shelving trench M, about two feet deep, in rear of each wheel, into which to run the gun when necessary, thus lowering it within a foot of the ground.

We are indebted to Captain Moncrieff, personally, for this admirable hint about shelter-trenches.

In all future wars, the Gatling is undoubtedly destined to play an important part, and in our colonies it will soon prove indispensable. Wherever the withdrawal of English troops is rendered expedient, this gun is now ready to supply the deficiency of numbers; and in settlements where the descent

of savage hordes may be dreaded, so awe-inspiring an instrument of death will unquestionably prove itself the right gun in the right place. How invaluable it would have been in the Indian mutiny we can readily imagine, as well as in such minor campaigns as those waged lately in New Zealand, Abyssinia, the West Coast of Africa, the Red River, and British Honduras—not to mention the present difficult Looshai expedition, where its ease of transport—for the Gatling can be taken to pieces, and carried separately—and its startling effects on the natives might bring the affair to a speedy termination. And at home, why should not our volunteer artillery, who are ambitious to be employed in the field, be armed with them? By doing so, the authorities would, we imagine, effect a compromise between the wishes of this patriotic force and their capabilities, alike creditable to volunteers and serviceable to the country.

With torpedoes bristling along our coastline, and enormous rifled guns, supplemented by these terrible Gatlings, scattered throughout the kingdom, we ought, mechanically speaking, to feel secure; but to make us so, do we not require something more? A united will for the common good, a stubborn resolution to keep our soil intact, a lively recollection of past glories, and a determination to repeat them should the need arise. *Dulce et decorum est pro patria mori!*

### THE BRIDAL OF MYRA CARNE.

BY JOHN BAKER HOPKINS.

A BLACK, frowning, rock-bound coast, marked by a mile of very tall and precipitous cliffs. Midway there is a wide gap, and a bed of sand—fine as the sand of the desert, and golden. This opening is bay-like in form, and slopes from the heights to the sea-shore. The sand bed, which stretches right and left at the base of the cliffs, is bordered by a belt of shingle; and beyond the shingle are breakers, some so large that they are rarely o'erswept by the sea. When the mighty waves battle with these outer rocks, the high-thrown clouds of spray and the vast expanse of seething foam bear witness to the fierceness of the strife. A few yards from the brow of the sandbank is a village—a straggling line of cottages, built of rough-hewn sandstone, and heavily thatched. The church is, perhaps, the smallest in England;

but then the whole population of the place does not exceed three hundred souls.

The men earn their bread by fishing, and by helping the luckless ships that are driven on that cruel, forbidding coast. Terrible wrecking stories are told of hapless crews being murdered and cast into the raging surge for the sake of plunder. If these tales be true, it is strange how little the wreckers are enriched by their blood-bought spoil—and bought, too, at the risk of their own lives. The tombstones that surround the little church bear record that death by drowning is not an uncommon fate at Stormcliff Bay.

The parson, the doctor, and the lawyer live at an inland town; and if the villagers ail in mind, body, or estate, they have to travel seven miles for professional comfort, aid, or counsel.

The best house—truly, the only house—at Stormcliff Bay is Eagles' Nest, standing on a jutting ledge of the highest rock. There dwelt Captain Carne, Aunt Ellen, and Myra.

Nearly eighteen years before the time I tell of, the Captain—then in middle age—came with a young wife to Stormcliff Bay for a week or two. The young wife was seized with sudden illness, could not be moved, and died. The widower would not leave the village, and with his only child and maiden sister abode at Eagles' Nest.

Captain Carne and Aunt Ellen were loved by the villagers, to whom they were ever ready friends. Myra was at least not less loved than her father and aunt. A joyous girl, and beautiful. The rough sea breeze had not affected the surpassing fairness of her skin—fair as the lily of the poet's dream, and tenderly soft. Eyes large and blue—the blue of the Southern sky; wavelets of nut-brown hair veiling her shoulders and falling below her waist; features nobly outlined, with mouth of exquisite sweetness. Above all—the beauty that is felt but cannot be described—a countenance of light, love, and gladness—the shining fort., the radiant sheen of a pure and happy spirit.

It was Sunday evening in full summertide. A night of tropical warmth follows a day of glowing heat. The sea is singularly calm, and the waves wash languidly against the breakers. The people of Stormcliff Bay, together with a few visitors from the neighbourhood, are on the sands. The sun has gone down in exceeding splendour. The moon is rising in her plenitude, and the