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LATEST TYPE OF THE MAXIM MACHINE GUN.

It will be remembered that Mr. Henry M. Stanley was compelled, a short time ago, to abandon his lecturing tour through this country, and was recalled to take command of an expedition in relief of Emin Pasha, the successor of General Gordon, who is at present supposed to be beleaguered by hostile Africans near Wadelai, not far from Lake Albert Nyanza. Before leaving England he provided himself with one of Mr. Hiram S. Maxim's automatic machine guns, and the illustration, which is taken from a photograph, represents the great explorer in the act of firing the gun, while our compatriot, the inventor, is standing immediately behind the gun.

The gun made for Mr. Stanley weighs 40 pounds, the swivel on which it is mounted weighs 16 pounds, the tripod without the shield weighs 50 pounds, and the shield weighs 50 pounds. The gun may be detached from the tripod, which may be folded with the greatest facility. The seat slides back, drawing the strut with it, and the whole thing folds up. The tripod is different from the type illustrated in this paper in issue of December 13, 1884, being constructed for this particular service.

The action of the gun is automatic, each cartridge being discharged by the recoil of the shot preceding. The cartridges are placed in a belt, and the empty

shells are thrown out in front of the gun, as shown in the photograph. The rate of fire is about 600 times a minute. With the shorter and smaller cartridges, such as are used in the U. S. army, the rate of firing would be about 700 shots a minute. The rapidity of the fire is such that at a thousand yards range twenty bullets will strike the target after the gun ceases to fire, while by giving the gun a very high elevation, five hundred rounds may be discharged before the first bullet strikes the ground.

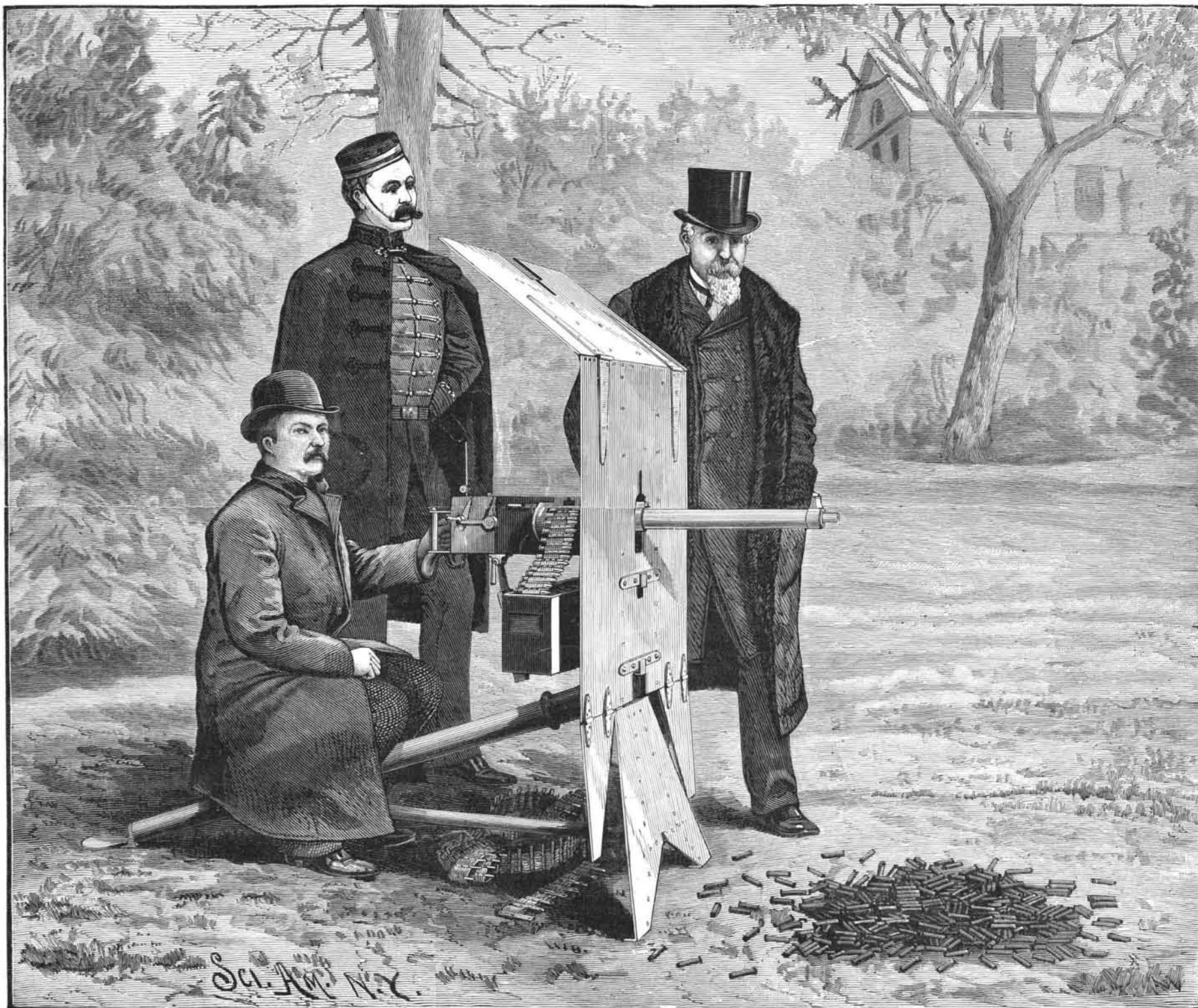
To prevent too great heating a water tank is provided, from which the water is fed through the casing around the barrel. The amount of heat thus generated is about $1\frac{1}{2}$ units for each discharge, and a thousand rounds will evaporate more than a pint of water.

The gun is mounted pivotally, to admit of considerable latitude of range, and it may be turned very readily in any direction. The shield in the illustration is raised as a protection against arrows and spears. The top and bottom hinged sections may be lowered and raised, however, to provide a double thickness against bullets.

Casting Steel Forts.

Sir Henry Bessemer proposes to obviate the enormous expense of ordinary armor plates for forts by casting *in situ* the whole face of a fort or complete turret in

one solid piece of steel, with all its ports and loop-holes properly shaped and formed in the act of casting. He says: "Let us take as a simple example the production of a fort with a curved face 100 ft. in length, 16 ft. high, and 3 ft. in thickness. Such a plate would be moulded after the manner practiced in ordinary iron foundries, that is, with brick walls held together with iron binders and internally lined with fire clay. Alongside this mould would be placed the melting cupolas and four fixed 20 ton Bessemer converters, each capable of turn-out out eighteen charges per day of twenty-four hours, thus delivering into the mould one ton of molten steel a minute. At this rate of working, the mould would be filled in sixteen hours, and produce a single plate weighing 960 tons, requiring no backing or superstructure for its support, and no expensive fitting together of separate parts. The static pressure in the mould tending to bust it open would, in this system of slowly filling the mould, be extremely small, owing to the fact that the metal will solidify at the lower part, leaving only half a foot or so fluid at the upper part. It will be equally obvious that it would be quite impossible to destroy such masses of steel as could be produced by this method by any existing artillery, while the price which such castings would cost at a time when we can purchase finished steel rails for £3 15s. per ton will be readily understood."



MR. HENRY M. STANLEY EXPERIMENTING WITH THE MAXIM AUTOMATIC MACHINE GUN.