Firing a Cannon From a Cannon

An inventor's ingenious plan to bring down aircraft flying at great heights

ONCE upon a time, so an old fairy tale runs, a lunatic wanted to bombard the moon. He invented a shell that was in itself a cannon. During its flight, this projectile-cannon would discharge another shell, which was also a cannon. And so by firing successive cannons within cannons the lunatic thought that he might cover the space of 260,000 miles that separates us from our satellite.

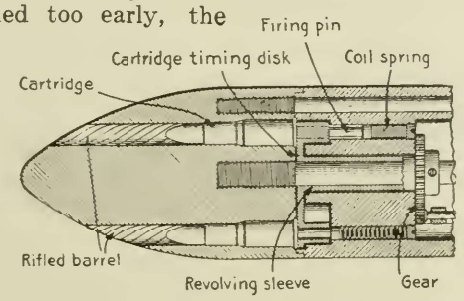
Now that cannon must be fired at elusive aircraft, this ancient idea has been revived in earnest. Airplanes must be fired at point blank, there is neither opportunity nor time to figure out the exact range. On the other hand, the explosion of the shrapnel-shell is not so easily timed. The hail of bullets that follows the bursting of shrapnel meets so much more air resistance than the shell itself that not only is the scattering effect too great, but the striking force is too small. If by any chance the explosion be timed too early, the scattering effect is not sufficient and the airplane is not winged as a shot-gun wings a snipe or a quail.

Andrew W. Graham meets this difficulty by inventing a shell that is not merely an envelope to hold bullets together for a certain distance, as in shrapnel, but which, like that in the fairy tale, is a gun in itself, and a very powerful Gatling gun at that.

The Gun Within a Gun

A shell like that which Mr. Graham has conceived can be timed to discharge its bullets efficiently, far from its target, unlike shrapnel. The bullets do not lose in velocity, thanks to their elongated form and their rotation. Their velocity is the sum of the shell's velocity and their own. Were it not for the centrifugal action of the shell, they would not scatter. The firing can be timed so that at least one volley will scatter properly.

The projectile is pierced with a dozen or so of rifled channels, each constituting a barrel loaded with a regulation rifle cartridge. The inventor has provided a lock and firing pin for each hole and a clock-work mechanism to fire simultaneously series of barrels or holes. This mechanism seems a needless and hardly feasible complication. Such is the concussion in a shell when it is fired from a gun that the shrapnel balls must be cemented together. How will clock-work endure a shock that even solid balls cannot withstand? The fuse used in shrapnel, a marvel of accurate mechanism, adapts itself to setting off the charges of the rifled passages of Mr. Graham's shell. By thus discarding the clock mechanism, the barrels or rifled holes can be made longer, which means greater accuracy of fire.



The ordinary fuse used in shrapnel sets off the charges of the rifled passages of the shell