

Dropping Aerial Bombs Thru a Cone of Light

A NOVEL bomb-dropping scheme is depicted in the painting reproduced on our front cover. This scheme is intended for use in conjunction with Battleplanes, the aerial bombs being dropped through a cone of light. This powerful illuminant is composed of a ring of high candlepower electric lights. Each lamp is supported in a separate reflector under the hood of the bomb-dropper as shown in the accompanying illustration. The various light beams from each lamp cross the other beams and in this manner a concentrated cone of light is produced as is evident. The lamps themselves may be the new incandescent arc units recently developed and perfected by the Ediswan Company of England. This unit has the appearance of a high candlepower tungsten bulb, but instead of heating a fine wire filament in the usual manner, an arc between tungsten or other high fusing alloys is made the source of light.

These incandescent arc lamp units can readily be constructed to yield as high as 3,000 C.P. If then, we should use, say, 20 such lamps (the efficiency being 2 C.P. per watt of electrical energy), there would be required 30 K.W. or 40 H.P. with total resultant C.P. of 60,000. The present tendency in building Battleplanes is toward massive proportions, involving engines developing several hundred horsepower. Therefore the energy required for the bomb-dropper illuminant is not unreasonable, and besides it can be built in smaller sizes than here suggested. The energy necessary for operating the electro-magnets which release the bombs one after another (independently but consecutively) is slight and could be supplied by a small storage battery. A dynamo direct-connected to the main engines would probably be found best for the source of current for the high candlepower lamps. Furthermore, there might also be used a form of cold light, which, it has been said, a French scientist has quite recently invented.

Reports state that the French war office experts are now experimenting with this new type of searchlight proposed by the French professor, Dussaud, which will throw a blinding beam to unheard of altitudes and betray the Zeppelins to the French batteries and aeroplanes.

Professor Dussaud's cold light is generated by utilizing nearly 100 per cent. of the electric current for illuminating instead of losing 70 or 90 per cent. of the power in generating useless heat, as in the

ordinary electric lighting system at present. Hopes are entertained that this system will produce a searchlight five times stronger than the old types, with over 100,000 candle power. These new lights will absolutely blind everything in their path it is said and will bore a luminous hole through the heaviest cloud strata.

At any rate there are a number of powerful electric lamps available for this purpose and by means of a switch on the aeroplane the illumination can be instantly cut off as desired. The bomb-dropper with its ring of lamps is suspended at the lower

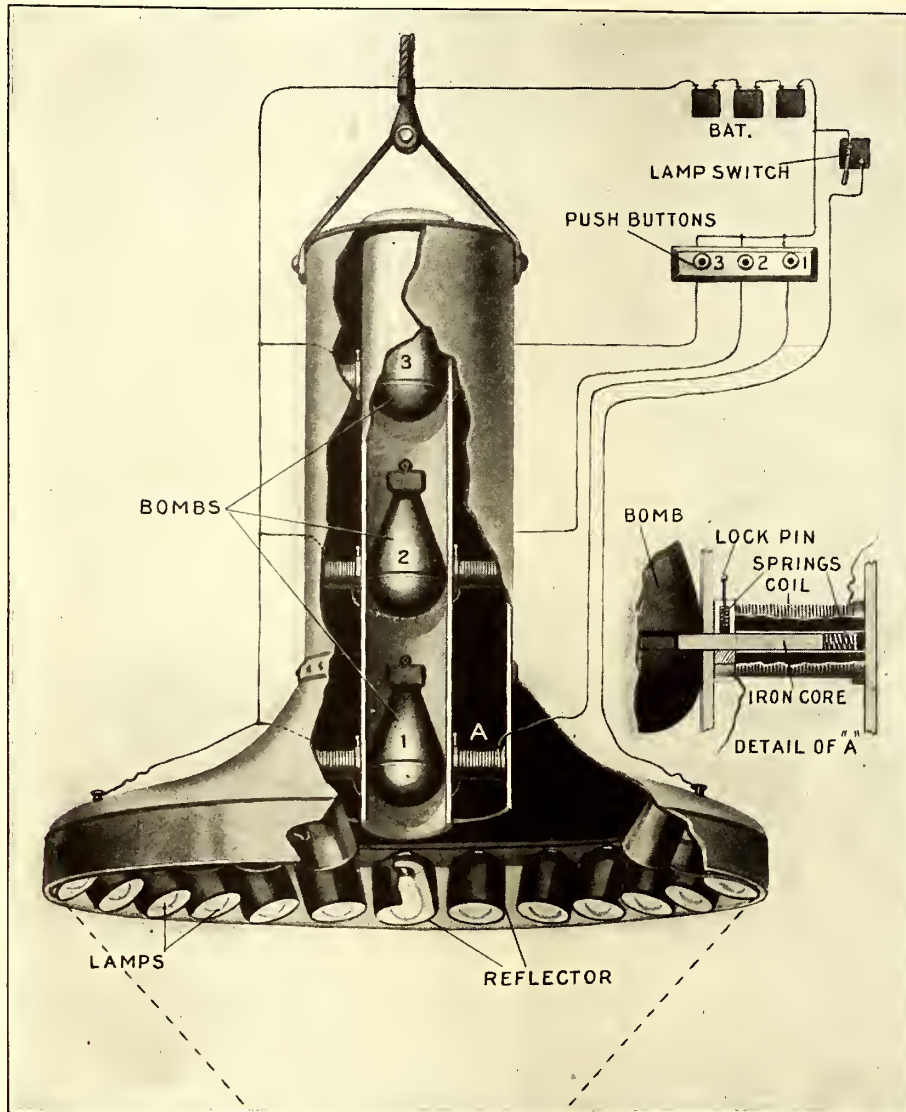
pair of electro-magnets provided with sliding cores. The two cores engage, when projecting within the tube, an annular groove turned in the wall of the bomb. Each pair of magnet coils, corresponding, of course, to a certain bomb, is connected to its own individual push button on a control switchboard aboard the Battleplane. Hence by pressing buttons marked No. 1, No. 2, No. 3, etc., consecutively, the death-dealing missiles will be dispatched earthward with scientific precision and without, moreover, endangering the life of a bomb-dropping expert suspended in a basket at the end of the cable, a scheme said to be employed by the German Zeppelins.

In reloading the bomb-dropper the magnetically operated retaining rods are released by simply pulling upward on the locking pins, which are spring actuated as the illustration clearly shows. When the magnet core is pulled inward by exciting the winding with current from the plane above, the locking pin drops into a notch in the core. It cannot move outward again to obstruct the path of the remaining missiles, until the entire mechanism is hauled aboard again. The locking pins can then be manually released, when the bombs are in position, and the springs behind each core will force them outward for the purpose set forth.

This scheme has several distinctive features. For one thing, the dropping of the bomb through a circle of light is bound to increase the accuracy of the marksman, as this arrangement corresponds to a flashlight-pistol which has been proven to possess a deadly accurate fire. Once the target lies in the center of the circle of light, a missed shot becomes a rarity indeed. Identically the same efficiency holds

here, modified naturally to some extent, by the movement of the Battleplane in its flight, which makes the work of the aerial gunner considerably more difficult. Should the enemy start shelling the bomb-dropper illuminant, the lamps can be instantly extinguished. Then the armored Battleplane can rise quickly and speed away in safety before the hostile searchlight beams manage to locate it.

By the construction of a dam below Niagara Falls, it is planned to raise the water 90 feet, thus tripling the power now being derived from this great source. This can be done without diverting any water from the crest, which would be likely to mar its beauty.



Details of electrically controlled Bomb-Dropper depicted in action on the front cover. A set of electromagnets release each Aerial Bomb at the touch of a button at battleplane commander's side.

end of a flexible steel cable and the wires controlling the whole outfit follow this cable also. When necessary the suspension cable is wound up by a power-driven winch and the bomb-dropper can thus be raised right up into the plane through a suitable opening in the floor of the machine. It is proposed that the bombs be put up in magazine holders, each of which may contain eight to twelve bombs. It will then be a simple matter to reload the bomb-dropper by inserting one of these prepared magazines, just before the device is again lowered to the proper level.

Referring to the sectional view of the bomb-releasing mechanism, it will be observed that each bomb is retained normally in the vertical magazine tube by a