

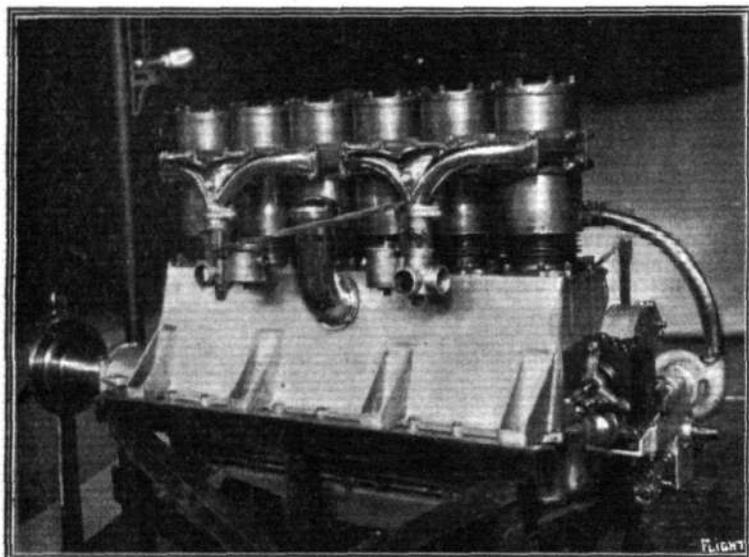
**SOME MORE ENGINES AT OLYMPIA.**

**Argylls, Ltd. (STAND 33.)**

THE aero engines shown on this stand resemble, in some measure, the conventional car engine, being of the 6-cylinder vertical type, but the cylinders are separate and of forged steel, while the magneto and water-pump driving shaft is disposed at the end of the engine. The detachable heads employed on the ordinary sleeve-valve engine are fitted, and are of steel, as are also the jackets on the cylinders.

Water cooling, by forced circulation, is provided, but radiating fins have been turned upon the circumference of the lower portion of the cylinder barrel to assist in keeping down the temperature at that part. Particular attention is directed to the ingenious method of attaching the inlet and exhaust connections. These are formed in two halves, and held together so as to encircle the cylinder in the vicinity of the ports, by a special form of clamp—the two halves being pinned to the cylinder so as to prevent any up or down movement.

The crank-case is of cast aluminium, the lower portion forming an oil sump, from whence oil is drawn by two gear pumps driven off the end of the crank-shaft, and fed to the main bearings and the



120 h.p. sleeve-valve Argyll aero engine.

troughs under the connecting rods and to the valve operating gear. A Bosch double ignition set is provided, giving synchronous ignition at two plugs in each cylinder, while two carburettors of the Zenith pattern are also fitted.

It is stated that the engine exhibited, which has just completed its tests at the works of Messrs. Argylls, at Alexandria, will develop 130 h.p. at 1,200 revolutions per minute, so that the weight per h.p. is 4.6. The price of the engine is £1,050.

**Austro-Daimler Motor Co., Ltd. (STAND 87.)**

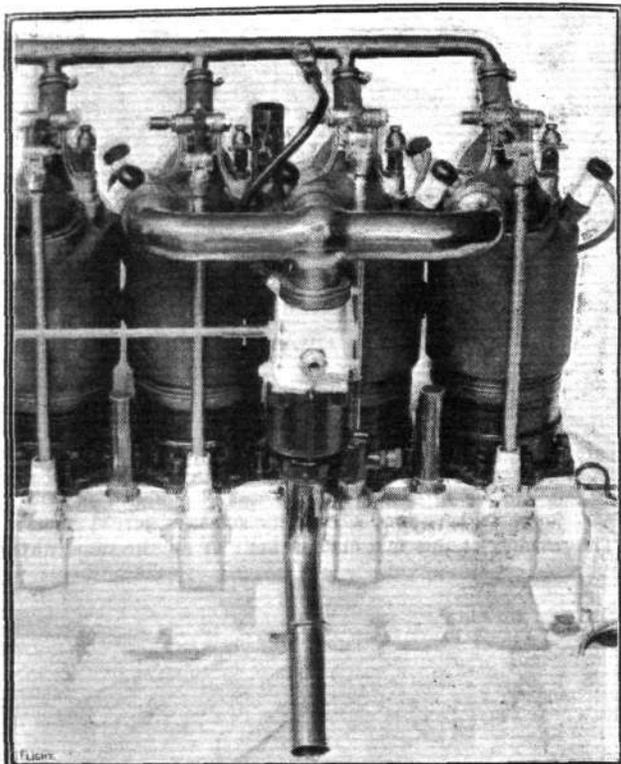
THE principal alterations carried out in their engines were noted in the last issue of FLIGHT, and apart from detail improvements are mainly in connection with the carburettor, the lubricating and ignition systems and the construction of the lower portion of the cylinders. All these have as their object, the attainment of greater reliability, durability and freedom from breakdown, and as such are deemed to be worthy of commendation. The means whereby immunity from danger through the carburettor, which is of the "jet-in-tube" type with annular float surrounding the jet chamber catching fire is shown in the accompanying illustration—where the long intake tube and the gauze covered extra-air inlet are clearly seen. This photograph also indicates the holding-down flanges on the cylinder, as well as the grease cups on the valve rocker pivots and the porcelain insulators and protectors the over plugs. The special care taken with the engine lubrication, is evidenced by the fact that each cylinder is provided with a special oil feed through a small ball valve from the main forced system, thereby ensuring the minimum of friction in a part where effective lubrication is extremely difficult; while the comparative freedom from attention is demonstrated by the statement that one of the 120 h.p. engines was used by the late S. F. Cody for twelve months without being overhauled.

An exceptionally short connecting rod is employed, its length being only 3.2 times the crank throw, but the obliquity on the power stroke is reduced by setting the cylinder *desaxé* with respect to the crank-shaft. It will be seen that the water pipes are of gradually

increasing bore, so as to ensure the supply of an equal quantity of water to each cylinder.

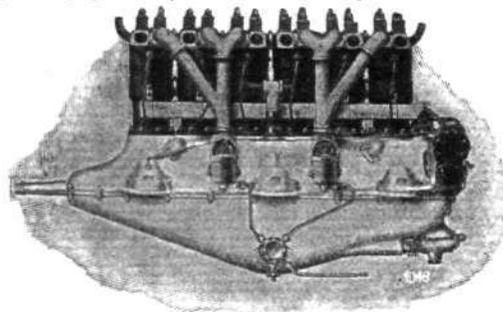
**Benz (The Brompton Motor Co.) (STAND 26.)**

THE 85 h.p. engine shown on this stand is quite up to the standard of excellence now expected with the Benz products. Every attention has been given to the elimination of distortion and vibration due to structural weakness, lack of rigidity or imperfect balance, with the result that the engine runs extremely smoothly at all speeds and under the heaviest load.



Inlet piping and carburettor on the 90 h.p. Beardmore Austro-Daimler engines, showing the precautions taken against fire.

Lightness has been achieved by the employment of the highest grades of materials and the extensive use of webbing and ribbing, especially in the crank-case, which is a fine piece of work in aluminium, a nose piece extending from one end in which a ball thrust for taking the propeller thrust or push is supported. The valve operating gear is provided with a special half-compression



85 h.p. Benz aero engine, as viewed from the inlet side.

device, so as to facilitate starting up. All the aero engines produced by this firm have two magnetos with two sets of plugs, concerning which we need only say that apart from any question of increased power, the greater surety that the engine will function, even when one set of plugs become fouled, renders the practice an extremely desirable one.

**Clement-Bayard (Delacombe and Marechal.) (STAND 67.)**

THIS engine has attracted considerable attention because of its large size and the workmanship displayed in its manufacture. It is rated at 250 h.p., 155 mm. bore by 200 mm. stroke, but has developed 280 h.p. at 1,400 revs. per minute, and is intended for airship and hydro-aeroplane. An overhead valve gear is fitted, driven by a vertical shaft, provided with universal joints at each end, which are totally enclosed by an aluminium casing so as to