



Fig. 3.—Some component parts of an 8-cyl. Ashmussen aero engine, as fitted to a Wright model B biplane.

is that they can be taken apart very easily without removing the engine from its bed. The cylinders can readily be withdrawn from the crank case, leaving exposed the pistons, connecting rods, crankshaft, &c., whilst the

removal of the cylinder heads enables an inspection to be made of the valve pockets and seatings. Ashmussen engines have been used on Blérot-type monoplanes, Curtiss tractor biplanes and Wright Model B biplanes.

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OVER THE LINES IN A BATTLE-PLANE.

THE following very vivid pen-picture of a flight over the trenches, officially sanctioned by the French authorities, is by Mr. Ralph Pulitzer, the Editor-in-Chief of the *New York World*, in which paper the account appeared. The machine which carried Mr. Pulitzer was, we believe, a twin-tractor Caudron biplane, and, if we may hazard a guess, we think the pilot will probably be found in Poulet:—

“I have just returned from a unique visit to the front. This afternoon I flew in an army aeroplane from Paris to the fighting line, skirted these lines for a few kilometres, and flew back to Paris. We made the round trip without a break.

“I am indebted to the quite exceptional kindness of the French Foreign Office and the French War Office for this flight. No other civilian has been allowed to ascend in a French army aeroplane at all, and as for visiting the front in one, it has apparently been undreamed of.

“I received definite word yesterday evening that at 4.30 this afternoon I would find a military motor at the door of my hotel, that it would take me to the great aviation station at —, in the suburbs of Paris, and that at 5 o'clock a double-motored battleplane would set flight with me. At a couple of minutes past 5 I was struggling into a heavy leather suit, which I put on over my regular clothes, and a heavy padded helmet which was carefully fastened under my chin by a buttoned flap and also an elastic band. A minute later I was climbing sinuously into my seat in the front of the aeroplane, while my pilot wormed his way into his seat a few feet behind me. A few seconds later the two great propellers (or, rather, tractors) started to flash around with a snap and a roar, the battleplane started slowly forward, gained in speed until we were running along the big field like a racing automobile; then suddenly the people standing round dropped away from us like a gigantic express elevator load leaving one standing on the upper floor of a skyscraper, and in a moment more the earth had become a strange and placid panorama with which we had no connection or concern. On and up, on and up we flew, headed straight as an arrow for the closest portion of the battlefront, 90 kilometres (56 miles) away.

“As a vast crazy quilt of numberless shades of green and brown rolled slowly below as I had time to pay more attention to my immediate surroundings. I sat in the front or observer's seat of a great new French biplane, which the English call a battleplane and the French call an *avions de chasse*, or hunting aeroplane. They call their smaller one-motored machines, which are used chiefly for directing artillery fire by wireless, their *avions de reglage*, or regulating aeroplanes.

“But these great biplanes, with two independent motors, each driving a wheel so that if one is shot to pieces the flight can continue on the other, they fondly call their hunting aeroplanes, for with them they hunt the Taubes and the Aviatiks of the enemy, and they tell me that their enemy generally gives them a wide berth.

“I found myself sitting in a little cockpit strapped to a comfortable seat. In the floor of the little cockpit right in front of my feet was a little glass window, through which I could watch the ground passing directly (though some thousand feet) underneath. I could get an uninterrupted view of the scenery across a space of about 4 feet right ahead. Further to right and left the view flickered curiously through the lightning swift twirling of the propeller blades.

“‘Don't stretch your head out in front to either side,’ had cautioned the aviation captain before I left the earth, ‘or you'll certainly get guillotined.’ I craned my neck gingerly round to look behind me. In another little cockpit about 4 feet aft sat the pilot. I could just see his face peering over the edge through a low windshield. Past his head on each side I got a view of the country we were leaving behind. This happened to be a farewell glimpse of Paris. It stretched vaguely away, bathed in the late afternoon sun, and yet shrouded in heavy haze and smoke, a sort of bird's-eye Whistler.

“Below the earth looked like a display of a carpet merchant's dreams. Square carpets, oblong carpets, long strips of carpet, carpets of light green, of dark green, of every intermediate shade of green, carpets of fawn colour and of brown, thin carpets, and carpets of wonderfully thick pile, plain carpets and carpets with symmetrical designs in light brown dots (several thousand feet nearer these dots would have resolved themselves into homely hay-cocks). Now the carpets stopped as we sailed over a forest of dense dark green with little mirrors stuck in it, which proved through my glasses to be not the tops of greenhouses, as I had imagined, but big lakes.

“And now the wisps of mist became banks of fog as we still climbed upward, and through these white banks the earth could only be seen in isolated dark patches. Higher and higher we climbed, till finally the earth was entirely veiled by the clouds below us. At a height of 3,000 metres, or nearly 10,000 feet, we straightened our angle and on an even keel roared away toward the front. It was a magnificent sight. We were flying along in a clear belt between the lower and the upper clouds. Below us stretched an unbroken white ocean of these lower clouds.

“On and on we flew, until finally I felt, instead of hearing, a violent rapping. Turning my head, I saw the pilot hammering with his right fist on the deck between our cockpits to attract my attention. He grinned amicably and opened his mouth wide. I could see he was shouting at me, but could not hear the faintest sound over the roar of the engines. He pointed to the whiteness below us a little to the right. Then he wrote an imaginary word with his forefinger on the deck between us. I could not read it upside down. I opened my leather coat, and with the cold instantly biting into my chest, hauled out my notebook and pencil and stretched them out to him. He shook his head and indicated that he could not take both hands away from steering, so I buttoned up my coat again in some perplexity.

“Then, without abruptness, with a certain sickening majesty, the aeroplane stood on its head, and shot down on to the surface