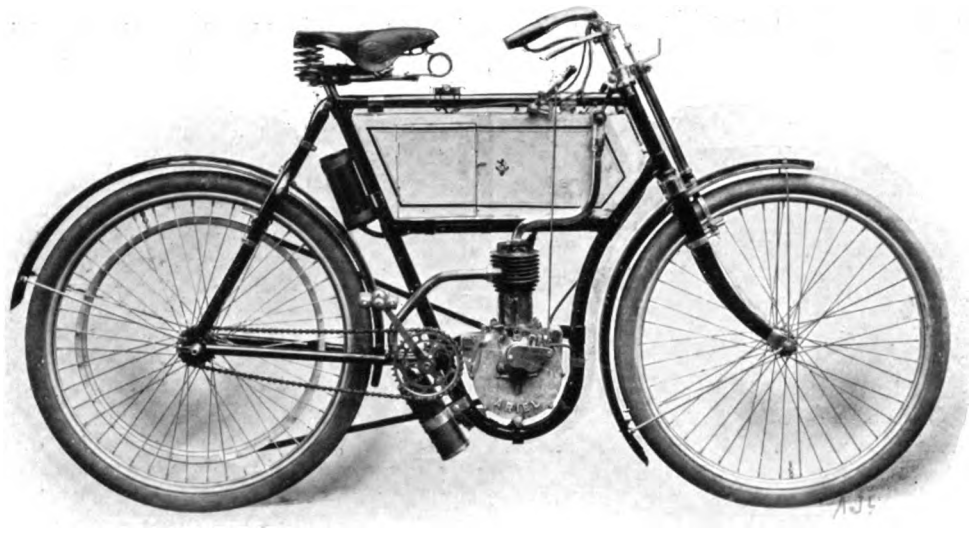
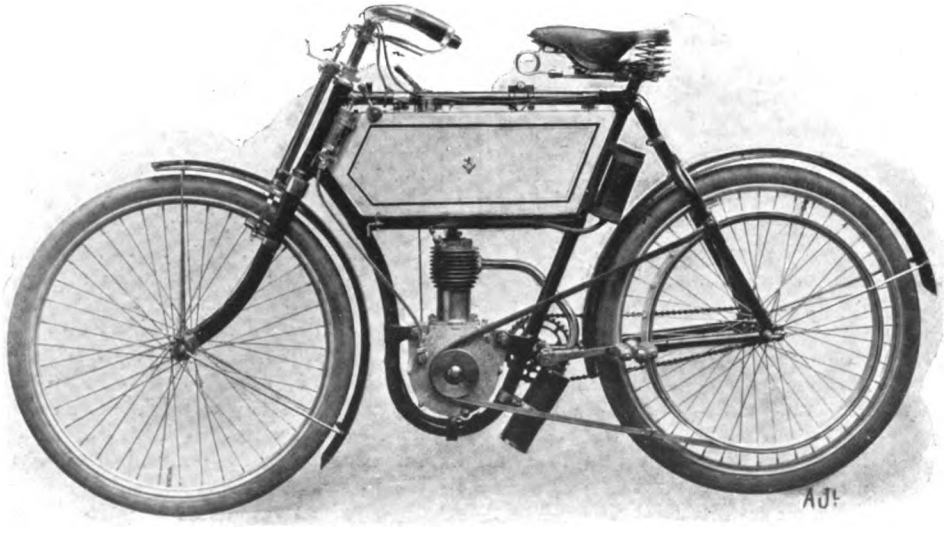
THE SWIFT MOTOR BICYCLE.



The Swift Motor Bicycle—Chain and Contact Breaker Side.

THE accompanying illustrations show the new bicycle which the Swift Cycle Company, of Coventry, are putting upon the market. It is a particularly strong machine and one in which simplicity of construction, combined with good workmanship, are the leading characteristics. In general respects it does not differ materially from a large number of other bicycles now on the market. A Lincona belt is used for transmitting the power from the motor to the rear wheel, and the ordinary foot-pedalling chain drive is provided. The frame loops round the crank chamber of the motor, and is fixed to it at three points, suitable lugs being brazed to the frame for this purpose. The frame has two horizontal tubes between which the tanks, battery, and the coil are carried in a neat case. The head is of the duplex pattern, in which a second tube, stiffening it considerably, is fixed in front of the ordinary head tube. The rod leading down to the rim brake on front wheel passes through this tube. The motor employed is one of the latest 2-h.p. Ariel, which is already well-known to our readers, and is one of the best made of its type now on the market. It is fixed in a vertical position, and the bottom bracket lies just behind it. The centre of gravity has been kept as low as possible, and the various parts of the engine are conveniently situated for inspection. A surface carburettor is used, and the richness of the mixture is regulated in the usual manner by two small levers. A larger lever just behind them is connected with contact maker-and-breaker, and with the exhaust valve lifter. The inter-connection between these two parts is such that the latter is brought into operation after the time of ignition



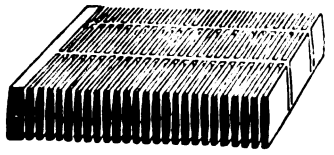
The Swift Motor Bicycle—Belt and Oil Pump Side.

has been retarded to its full extent. The contact-maker is of substantial design. Its cam is so shaped as to give a very quick "break," and the contact spring is brought by it into positive contact with its platinum-tipped screw. The primary circuit to the coil is thus made and broken once at every revolution of the cam. The accumulators have a capacity of 12 a.h. The two cells forming the battery are said to be sufficient for running about 500 miles without re-charging. A small hand-pump is fitted for measuring and forcing a charge of lubricating oil into the crank chamber, and this operation can be performed whilst the machine is in use. A safety plug is fitted upon the top tube, beneath the front of the saddle; removing the plug disconnects the electric circuit from the battery.

The front wheel rim brake, and a similar brake operated by a Bowden wire on the back wheel, ensure ample safety in this important respect. Wide mud-guards, the front one of which is extended forward from the forks, are fitted, and the Swift pattern free wheel is provided for the pedalling gear. The wheels are 28 inches in diameter, and are fitted with 2-inch by 2-inch Dunlop tyres. The usual handle switch for disconnecting the ignition and thus instantly stopping the engine is supplied. Special care has been taken to carry all pipes and wires neatly from place to place. As we have already said, strength and simplicity are the chief features of this bicycle, and it can confidently be recommended as a safe and reliable machine.

THE HAGEN "ALL THROUGH" GRID.

THE accompanying illustration shows the present type of positive plate employed by the Hagen Accumulator Company. As our readers are doubtless aware, the Hagen Company have hitherto employed a ribbed positive plate, in which the ribs form projections from the plate surface. The present form of plate belongs to what is known as the "all through" type, that is to say, the ribs or laminations are only connected by vertical stays, and on holding the plate up to the light a clear space right through, between the laminations, is observable. Other accumulator constructors have been aware of the increased capacity obtained by this form of plate. It is interesting to find the Hagen Company in this respect adopting the practice of other makers.



PARTICULARS have been sent us of a new and rapid process for seasoning and vulcanising timber, which, according to the results given, has the effect of enabling even soft wood to be seasoned in twenty-four hours, and of increasing its toughness, its weight, and its imperviousness to moisture. The Powell process consists in first saturating it at boiling temperature with a solution of common refined sugar. The water is afterwards evaporated out at a high temperature, and the interstices of the wood are then found to be filled with solid matter, the timber being vulcanised, preserved, and seasoned. We understand that further particulars will soon be given publicly of this invention, which may be found useful in motor vehicle construction.

REVIEWS OF BOOKS.

"Motor Cars, and the Application of Mechanical Power to Road Vehicles," by Rhys Jenkins, M.I.M.E. (T. Fisher Unwin, Paternoster Square, London.)

THIS is an exceedingly interesting, well got up, and really beautifully illustrated treatise. It is the kind of book that ought to have a very wide sale among those interested in the automobile movement, and is just the kind of work for the cultured motorist to display on his library table. To avoid misunderstanding and possible disappointment amongst purchasers, it would be well, however, to make it clearly understood what the nature of the book is. It is not a technical treatise on all the different motor cars of the present day, although these are mentioned and succinctly described. It is pre-eminently what its title describes it to be—a book about the application of mechanical power to road traction, and, we might add, more particularly in the past. At any rate, practically half the book is taken up with what one might almost call the archæology of the motor car, and wonderfully interesting reading it is for those who want to get a clear view of previous attempts to replace animal traction by mechanical power. The author sets his net rather wide, and includes in his purview carriages propelled by animal power, in which the animals were put inside the carriage instead of outside—the animals including men. Of course, these things were all fakes, and were really only designed to produce a mysterious effect, as in the processions mentioned by Heliodorus, and in the case of the wonderfully ornate Nürnberg carriage of 1649, which was presumably propelled by men turning winches concealed inside it. At any rate, it was sufficiently advanced to warn passengers of its approach by hooters held by carved angels on either side of it. Dealing with carriages propelled by the wind, it is distinctly surprising to learn that the first real sailing yacht went gaily before the wind across the sands of the Dutch coast, about the year 1600. And then we come to the dawn of the steam carriage, and few people probably are aware how early this dawn took place. The author attributes the first steam carriage to the great French Jesuit Verbiest, who was one of the founders of the Pekin Observatory, the instruments of which were recently raided by the Germans and carried off to Berlin. His carriage is described as having been propelled by something in the way of an eolipile, the invention of which was attributed to Hero of Alexandria, and was a kind of (probably imperfect) Laval turbine. We then encounter an excellent illustration of Cugnot's steam carriage, which was apparently the first steam vehicle that actually moved in Europe. The early steam carriages of the first part of the nineteenth century, and of what is appropriately termed in the book "the steam carriage boom," are all well illustrated and succinctly described, though some of them either did not run on roads at all, or, if they did, only traversed a few miles. It would have, perhaps, been well if the distinction between those which were practically successful to a certain extent, and those which remained only more or less completely incarnated projects, had been made more clear. The great thing is that the work does full justice, at great length and with very complete and attractive illustrations, to the really great development that the steam car attained between the years 1820 and 1840, and enables, better than any work we have yet seen dealing with the subject from the present day point