

# MATCHLESS MOTOR-CYCLES

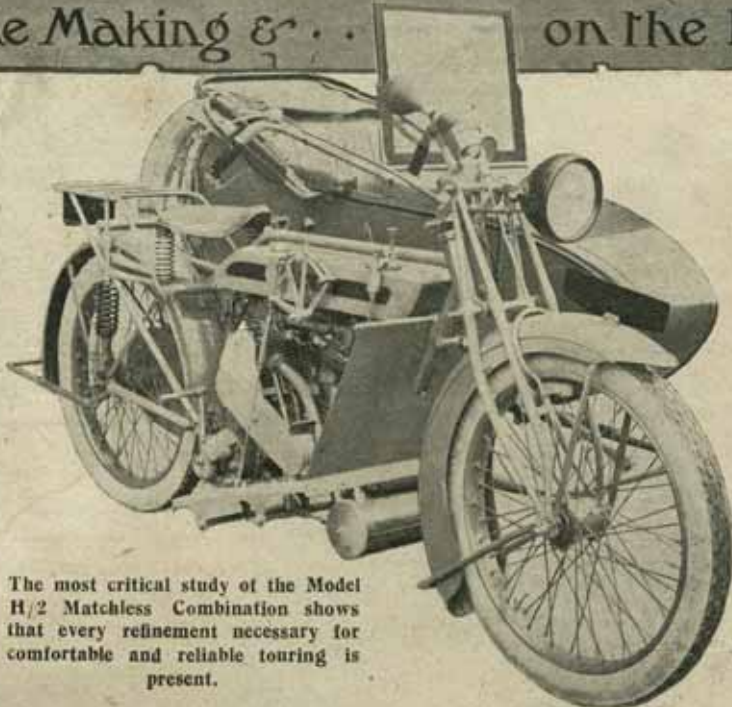
In the Making & . . . on the Road.

THE "Matchless" motor-cycles and combination emanating from the works of H. Collier & Sons, Ltd., 44-45, Plumstead Road, Plumstead, London, S.E.18, hold a high place in the estimation of traders as regards machines for passenger work. We recently made a complete tour of inspection round the "Matchless" factory, and are thus in a position to state that from start to finish the operations necessary to produce the finished article are conducted with care and accuracy and that the materials utilized are carefully selected so that each component will be made of a suitable grade of metal. Thus there is some justification for the attitude adopted by all "Matchless" enthusiasts, for such meticulous attention to detail as is practised by the manufacturers cannot but have its beneficial effect upon the completed production.

## Works "Lay-out."

When raw material is delivered to the works it is first taken into the rough stores on the ground floor, from whence it is issued to the various departments in order to undergo the operations necessary to transform it into finished parts. When completed, the latter are taken into the finished stores, also on the ground floor, and from here they are issued to the assembling departments. In both rough and finished stores the materials and parts are arranged in bins, and a modern system of store-keeping is used which enables a complete check on the stock to be maintained.

Included in the machinery which is utilized to produce complete parts is a battery of No. 4 Herbert capstans, which are responsible for all work on drop-forgings and castings. Upon a batch of eight No. 1.B. Milwaukee plain milling machines, such work as slotting fork ends, forming the convex end on stand yokes, slotting out internal-expanding brake shoes, squaring up the gear levers to fit the quadrant, slotting yoke ends, and forming the "dogs" on hub flanges is completed. A number of Cleveland automatics turn out large quantities of the various smaller parts which are used in the construction of the machines.



The most critical study of the Model H/2 Matchless Combination shows that every refinement necessary for comfortable and reliable touring is present.

with their maintenance, is carried out in a separate department of the factory.

By ordering supplies of all steels to conform to special specifications, and by giving particular attention to the efficiency of the case-hardening department, those parts subjected to wear have reached a high pitch of perfection. In the enamelling shops there are twelve large gas-heated stoves and each frame and part has three coats of enamel and one of varnish sprayed on by "Airstyle" equipment.

## Assembling Methods.

For producing motor-cycles in any appreciable quantity, it is essential that some system be adopted which prevents any undue delay or wasted effort, especially in view of the present abnormal cost of labour. The accompanying photographs show clearly the manner in which "Matchless" machines are produced. The assembling from the bare engine to the completed power unit with footboards and gear-box, etc., is reached in four stages. From this condition the unit is built into a completed machine in four further stages. In these latter operations use is made of small trolleys upon which the machines are erected, each man doing his particular sequence of operations and then passing the trolley on to his neighbour. The side-car is built up from the bare chassis in three portions, fixed to the machine, and the outfit is ready for road test. So smooth running is this system that when in full swing a complete outfit can, we are informed, be produced every 45 minutes.

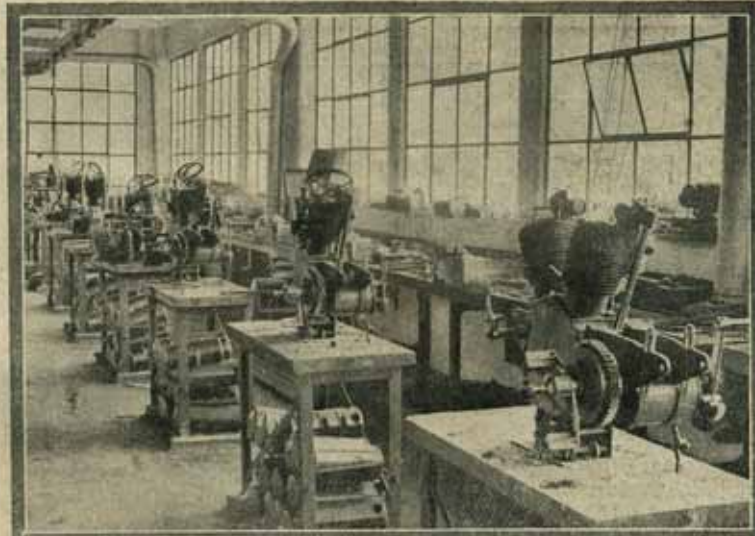
The road test given, in addition to the engine bench test, ensures that the completed machine is in perfect condition by the time it is delivered to the customer. In the assembling department, which is



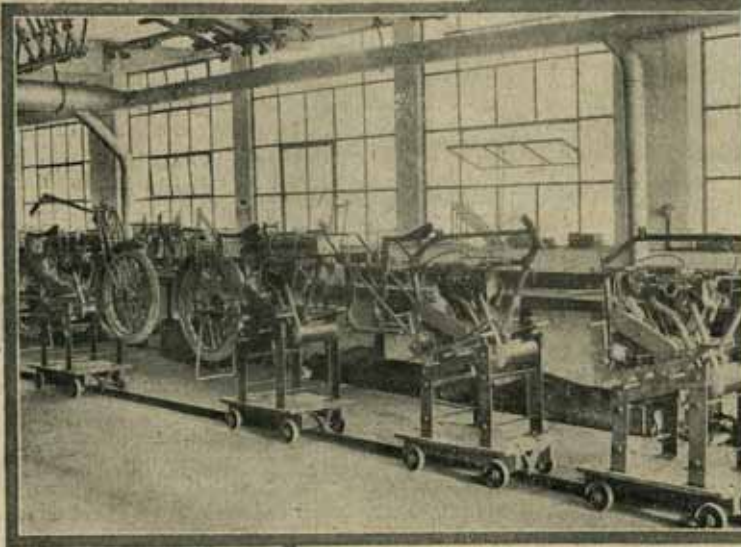
on the second floor, a Bowser petrol pump installation with a capacity of 500 gallons is installed. A "safety" lift running the whole height of the building serves to convey the completed machines to the ground floor.

**The Repair Department.**

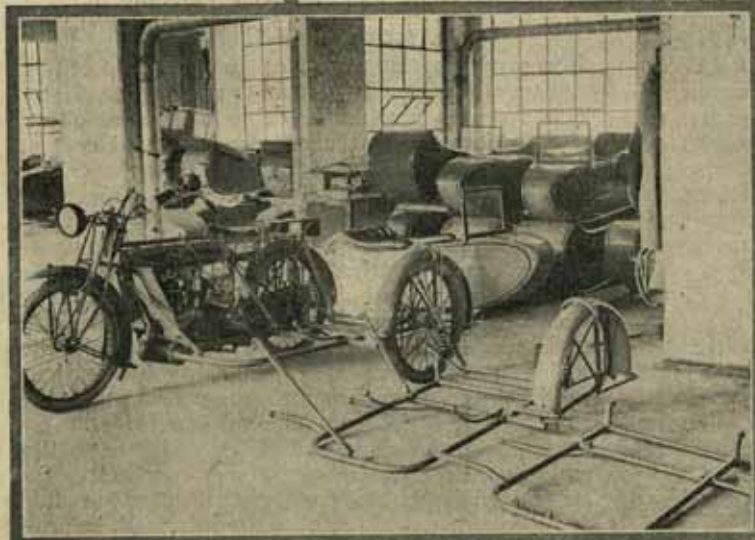
As there are many thousands of "Matchless" machines on the road at the present time, the repair shop is necessarily a large one, and is situated on the third or top floor. Here all classes of repair work from simple adjustments to complete overhauls are carried out by a skilled staff familiar with all the models which have been manufactured. From 30 to 40 machines can be dealt with each week in this department. An inspection of



In four stages the bare engine is converted to the complete power unit.



Next, the "solo" machine is completed by a further four stages.



A side-car is built-up in three stages, and the combination is finished.

several pre-war machines in for repair proved most interesting; some 1914 gear-boxes which had been in constant use were noticed to be in perfect condition, a testimonial to the quality of materials used. On this floor is also located the packing shop, and it will thus be seen that raw materials enter the building on the ground floor and the finished product leaves from the top of the building.

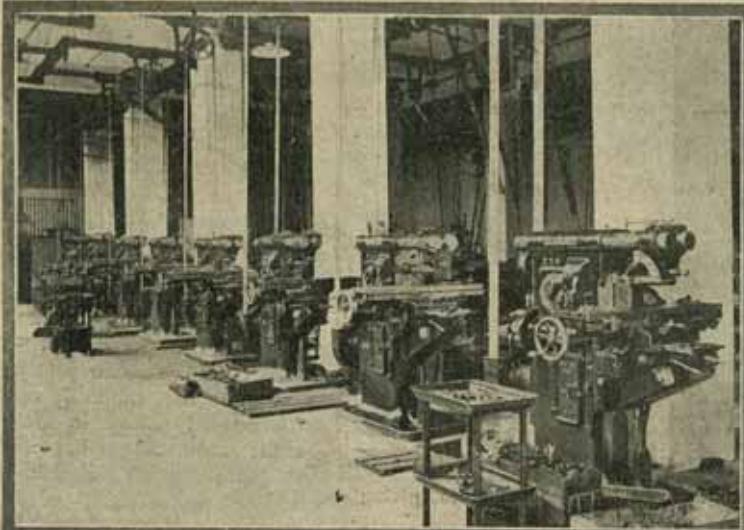
**Sales Organization.**

This important section is in the capable hands of Mr. A. Walker, and from an entertaining chat we learned from him that there was no prospect of any price reduction of "Matchless" machines this season, but should circumstances allow of this decision to be reversed before May 31 the firm will guarantee their customers and agents against any losses.

Agencies are fixed up all over the United Kingdom, but it has been noticed that the agents in the smaller towns are not fully alive to the business possibilities in their districts. The firm is always prepared to fix up agencies in small towns in such a manner that the trader can deal direct, instead of through a distributing house.

In the opinion of Mr. Walker, the time has gone by when a machine can be sold from the pages of a catalogue, and therefore the "live" agent should stock samples of the machines he handles. Of considerable interest to traders is the arrangement made by H. Collier & Sons, Ltd., with a guarantee corporation, so that the Matchless machines can be supplied on the gradual payment or hire-purchase system.





A battery of eight Milwaukee plain milling machines.

"Matchless" agents can also enjoy the advertising experiences of the manufacturers, for the latter are anxious to help traders in every possible way in their publicity efforts. It is interesting to note that spare parts for "Matchless" machines may be obtained by means of the spares service system which is in operation, by which traders may obtain replacement parts with ease and despatch.

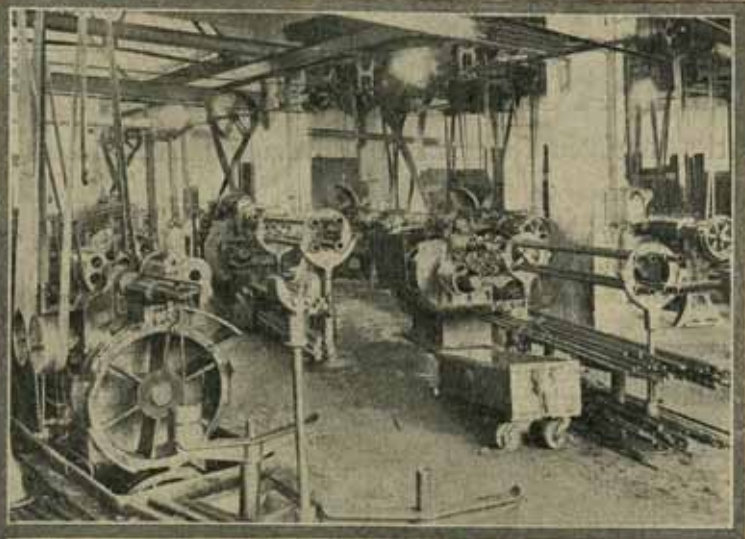
#### On the Road.

We recently took over a "Model H" outfit for the week-end, during which we covered some 250 miles. When handed to us the machine was quite new but, even so, during the first 70 miles it was capable of maintaining a really good average without any signs of "drying-up" or distress. On the Sunday, a run from North-West London to Manningtree, in Essex, a distance of some 65 miles, including about 15 miles of tram-lines, was covered well under the time allowed by the legal speed of 20 m.p.h. The return journey at night was even faster, the Lucas "Magdyno" lighting set providing such an excellent light that no slackening of speed was necessary.

Taking the outfit as a whole it is one of the most comfortable we have yet ridden. The efficiency of the coil spring suspension to both side-car and rear frame is noteworthy, and there is an entire absence of "sway" when cornering. The M.A.G. engine is not only powerful but absolutely tractable, while the careful designing of the induction system has eliminated air leaks so that perfectly even firing with the engine just "turning-over" is obtainable. Silencing

arrangements are good; in fact the machine may be described as extremely quiet. The clutch is easy to operate and takes up the load quite smoothly with no sign of "snatch," while it may be "slipped" to any desired degree without harm resulting.

On the machine tested the carburation was on the sensitive side, but when its peculiarities were mastered it was possible to obtain good acceleration, the power unit responding to the movement of the throttle lever in a striking manner. We are inclined to think, however, that in the hands of the average driver some little trouble might have been experienced in this direction. Our passenger reported that the side-car was quite comfortable and that no cramped



In this shop automatic machines produce components with unfailing regularity.



The capstan department is equipped with No. 4 Herbert capstans.



feeling was present after the 130 miles' run.

**Lubrication Facilities.**

Traders in "pushing" "Matchless" motor-cycles should point out to their prospective customers the manner in which the lubrication of all working parts has been facilitated. A special grease gun takes care of the hub bearings, the operation of filling the latter being most simple. The self-filling oil-gun enables the clutch, and the bearings of the springing system, to be easily attended to. The interchangeable and detachable wheels, the most easily handled motor-cycles we have handled.



A View of the Matchless Works. Especially noticeable is the large window area, giving ample interior light.

duplicated brake pedals for restarting on hills, the enclosed transmission, and the efficient adjustment to the front fork should also be pointed out as important details.

In the makers' catalogue the "Matchless" is quoted as being the "perfect passenger motor-cycle." While hardly endorsing this very comprehensive claim, we can justly say that the machine is thoroughly sound in design, constructed of excellent materials, exceedingly comfortable, very reliable, and one of the

## CAPAC SINGLE LEVER CARBURETTOR.

Little Changed for 1921, but having, nevertheless, Several Minor Improvements.

The popularity of the single-lever type of carburettor among the mass of motor-cyclists is not as great as one would think, the reason being that in the two-lever pattern the operator is able to obtain a "freak" mixture at any moment in order to meet any exceptional conditions that may arise. These latter, however, are only met with occasionally, and therefore the need for providing an unusual petrol-air ratio is comparatively rare. This being the case, the single lever type of instrument, provided that it is capable of giving an even mixture throughout its range, is by many expert riders regarded as the superior device, especially if some simple means of obtaining any desired mixture be embodied in its design.

The Capac Company, Ltd., 2, Woodstock St., Oxford St., London, W.1, have for some time marketed a single lever carburettor which has many excellent features, and for 1921 they have incorporated several minor improvements which are claimed to provide all the advantages of the two-lever type with none of its disadvantages.

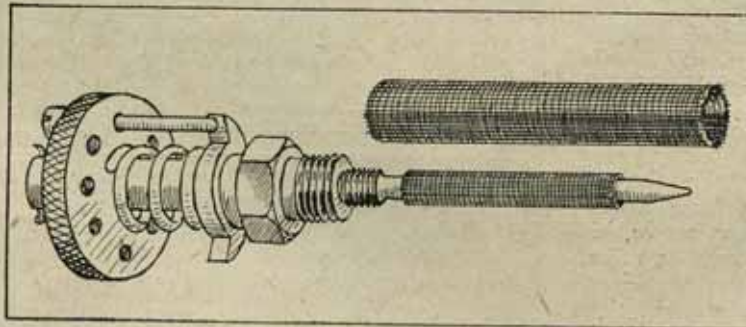
The principle of the Capac is well known, and as the instrument was described in these columns some little time ago, a detailed description is unnecessary. Dealing with the improvements we find that a new form of vaporizer has been adopted and this fitment is depicted in the accompanying illustration both separately and *in situ*.

As will be seen it consists of a fine gauze cylinder of certain mesh, and all the petrol passing through the

jet is, owing to the capillary properties of the gauze, drawn off from the latter in the form of a fine mist instead of in the less preferable globular form. Thus improved vaporization and better acceleration are secured, for in the latter connection it must be remembered that there is a certain quantity of fuel always carried in the gauze, and on opening the throttle suddenly this, what may be termed the reservoir of petrol, supplies the engine until the jet is able to deliver the requisite quantity by reason of

the greater velocity of the liquid induced by the increased suction.

Another definite improvement we have to note is the F.R. control. This little device consists of a variable screw which is shown in the appended sketch. The milled controlling disc has drilled in



The New Capac F.R. Jet-Control with "G" Type Vaporizer in place. The latter is also depicted separately.

it a series of holes, and at the factory the taper needle is set in its correct position, after which a small set screw is inserted through one of the holes, so that its end comes in contact with the two stops seen in the drawing. These stops are provided in order to render the carburettor incapable of supplying a really incorrect mixture, but any desired petrol-air ratio from which good results may be expected is easily obtained by merely turning the head. The provision of this device enables fuels with various densities to be used to the best advantage and increased economy is also gained.

The new control, which is interchangeable with the standard type of jet needle, retails at 7s. 6d., and should find a place on every Capac carburettor.