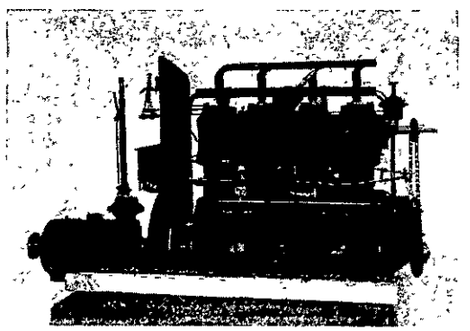
lies in a good coat. Here is one. The accompanying illustration serves very well to convey a notion of the manner in which this coat is made. The front is formed with a double flap lapping over fourteen inches at the top, and twenty one inches at the bottom, thus giving ample knee apron room for driving purposes. The coat itself is warmly lined with camel fleece, and an air resisting material is introduced between lining and cloth. In order that draughts may not penetrate beneath the flaps, the coat is made with three elastic bands, as shown in the left-hand picture, which are easily attached, and serve to keep the inner casing of the garment comfortably close to the body. The pockets in the outer portion



BRITANNIA MARINE ENGINE.

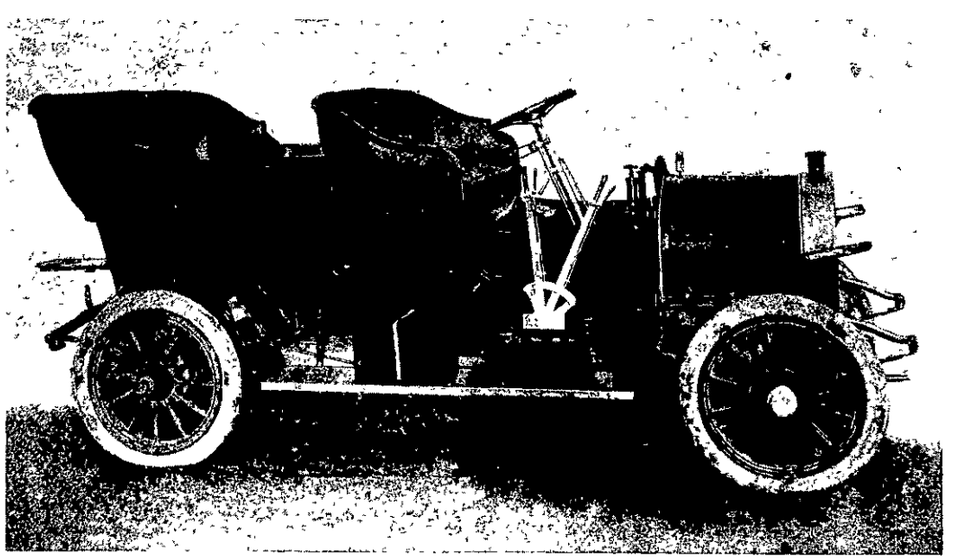
of the coat are gaped, so that the trouser and coat pockets are made accessible without unbuttoning the garment. The skirt of the coat is secured with an accessible tag, which precludes any possibility of gaping. The lower part of the flaps forming the inner skirt can, if required, be buttoned round the leg so as to form a loose kind of breeches. This arrangement makes for exceptional comfort when driving in cold and windy weather.

Brittania Marine Engine.

This cut shows one of the most up-to-date engines built for cruising work. It is of very neat and compact design and the highest grade of British workmanship, and is fitted with all the latest improvements. The control board at rear centres all levers and adjustments within easy reach of pilot seat, so that a forty-foot cruiser can be easily operated by one man. The engine photographed is from Lane & Sons launch works, King's Drive, Auckland. The makers claim that it has a range of speed almost equal to steam, and great ease of operation. The engine may be slowed down to a barely perceptible motion, remaining so for an indefinite time, or it may be opened up to 800 or 1,000 revolutions per minute.

Cheapness and Lightness in Cars.

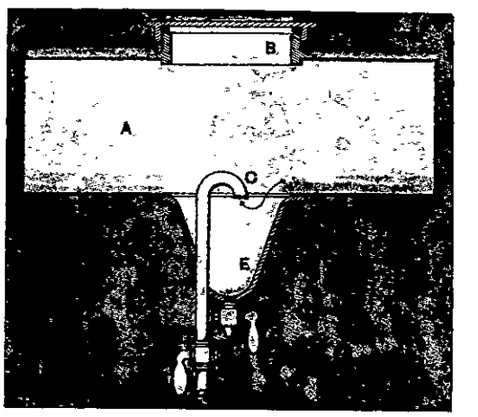
We illustrate what might be termed the forerunner of the cheap light car in New Zealand, *viz*:—the Airex 9 h.p. 2-cylinder motor. A few particulars of this machine will be of interest. The back axle is of the Renault type having steel differential box, ball bearings on road wheels, and thrust bearings behind differential bevel pinion. The transmission is by silent direct drive, and the clutch is leather lined with specially designed stops for ease in speed changing. The carburetter is spray with constant level, while the motor is 1,500 revolutions per minute; the control by handy and convenient levers on steering columns; ignition electric by accumulator and coil; cooling by radiator, and pump driven by friction on the fly wheel; wheels of the artillery type and size 28″ x 3″; body of the standard pattern, side entrance, of specially stamped sheet metal, superbly finished with high-class fittings and upholstery and rubber mats. The wheel base is 6′ 6″, wheel track 4′, total length 10′, and total width 4′ 6″. The frame is of pressed steel with under carriage and "demi-pincette" springs at the back. The gear box has three speeds forward, and one reverse, by means of a train of gears sliding on a square shaft. On the top speed the drive is direct, the square shaft engaging the cardan shaft by means of a claw with three projections fitted with ball bearings. When on top speed the secondary shaft remains stationary, while the first and second speeds are obtained by two different positions of the sliding gear. The three speeds and the reverse motion are actuated by one lever. All the shafts are of steel, case hardened and ground. In the differential gear the motion is transmitted from the gear box to the back axle by means of a shaft with two cardan joints, driving a small pinion in gear with a large bevel wheel. This wheel is fixed to a case containing the differential pinions which drive the axle carrying the wheels. On each side of this car is fitted a ball bearing, which can be adjusted from the outside by means of a screwed cap. The axles carrying the wheels are mounted on a ball bearing with a double row of balls, with convenient means of adjustment.



THE AIREX CAR.

Water and Petrol.

No one need tell the average motorist that water must be kept out of his petrol. He knows that well enough. What he does not know, or rather might know better, is how to keep the two irreconcilables apart. To help him in this direction, A. Foster, of New Zealand, has written a sensible suggestion



SAFETY PETROL TANK.

which we find in a contemporary, and hasten to reproduce with the accompanying illustration.—Mr. Foster says:—

Having witnessed the struggles of an unfortunate friend who had had his tank filled with water instead of petrol, I became interested in the problem of how to guard against such trouble.

Of course, care, and a fine gauze-lined funnel will solve the problem, but what is wanted is an apparatus always in use that requires no attention. I have seen all sorts of traps and catch boxes fitted to carburetters, but they would all be useless if once a few tablespoonfuls of water gained admittance.

What happens is as follows: water always falls to the bottom of the tank, so does most dust and dirt. Yet nearly all tanks are fitted with a petrol supply pipe and drain tap that have a back nut projecting above the floor of the tank, and so it is impossible to empty the tank by these means. Even inverting the tank generally reveals much the same arrangement at the screw cap.

By referring to the accompanying diagram it will be seen that a funnel-shaped projection, capable of holding about half a pint, is riveted to the tank floor. At the apex of the funnel a drain tap is fitted. Thus if the work is well done, and the joint to the tank properly made, all water quickly collects, and can be drained off from the tank.

The supply pipe passes up to the level of the floor of the tank after taking a curve, so that the opening looks downwards, and thus prevents dirt falling directly into the pipe. By filling the funnel full to the level of the tank floor, no water can enter the carburetter, and any grit or dirt trying to enter the supply pipe must jump across the base of the funnel to gain admittance.

Of course there is one essential thing to remember, and that is to turn on the drain tap after filling the tank, and make sure that it runs petrol and not water. I have fitted this arrangement to my car, and often invite sceptical friends to pour a half-can of water or so into my tank, and show them how I turn the drain tap to get rid of it. In fact,