

### A LIQUID FUEL AUTO-MOBILE TRAIN.

This road train was built to run between Cirencester and Fairford, Gloucester, a distance of eight miles, in connection with the Midland and Southwestern Junction Railway and the Great Western Railway. The train consists of a powerful motor van, capable of carrying two and a-half to three tons of goods and luggage, coupled to a passenger car or omnibus, capable of seating twenty passengers inside.

The total length of the train coupled together is 35 feet and can easily be turned within a radius of 20 feet. The coupling arrangement is made elastic, and there is no unpleasant jerking motion when the train is started suddenly.

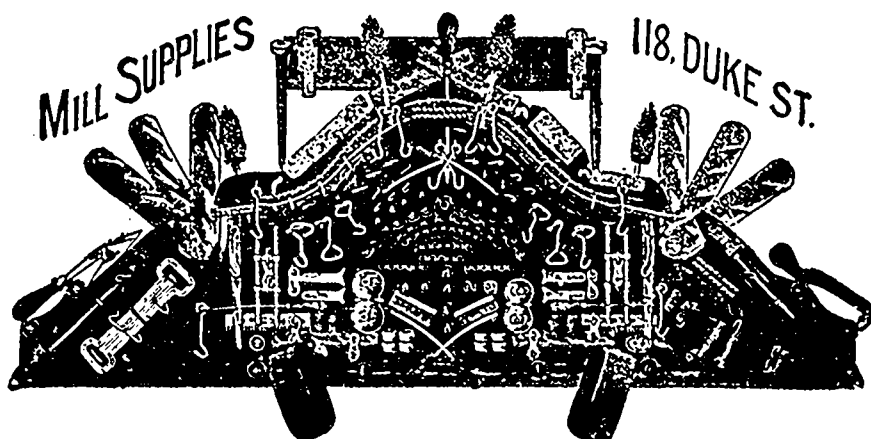
The van is 14 feet 3 inches long, 6 feet 3 inches wide, 9 feet 6 inches high, and with 250 cubic feet capacity; it is fitted with double-folding doors at the back, and sliding doors at either side for greater convenience in handling goods.

The boiler is the company's type, designed especially for motor cars, and is a combination of the smoke tube and water tube, with 100 square feet of heating surface, and is fitted with a 35 horse power Lift, automatically regulated by the steam pressure in the boiler at 225 lb. pressure per square inch. The largest part of the boiler is below the body of the van, and that part extending through the body is only 20 inches in diameter, and is lagged with asbestos and covered with teak staves; there is practically no heat in the goods compartment of the van from the boiler.

The engine is a double tandem compound reversible, designed especially for motor car purposes, capable of developing 20 I.H.P. working compound, and 35 I.H.P. by letting high pressure steam into the low pressure cylinders. The engine is securely fastened underneath the body of the van, and power is transmitted to a counter shaft by means of steel cut bevel gears through a telescopic shaft, which allows for the action of the springs and the unevenness of the roads; the counter shaft is fitted with a compensating gear and is securely fastened to a pair of steel reaches; steel pinions are fitted to either end of this counter shaft, which run in large internal cut gears fastened to the spokes of the hind wheels, each of these gears being protected by dust-proof guards. The speed ratio of the engine is 12 to 1; all of the shaft gears run in dust-proof oil cases. The exhaust steam from the engine first passes into an exhaust box, thence through a feed-water heater, condenser and separator combined; the small quantity of steam not being condensed passes into the funnel, where it is superheated and made invisible. There are two pumps for feeding the boiler one being double acting with reduced speed gear working direct from the engine crank shaft, the other an auxiliary duplex pump, placed beneath the driver's seat, for feeding the boiler when engine is at rest, or which can be used as a hand pump when the boiler contains no steam.

Two water tanks, capable of holding eighty-five gallons, are fitted in the van, one above the platform and one below, in front of the driver's seat. This is a sufficient quantity of water for a run of fifteen miles over rough country roads. Both tanks are filled by means of a steam injector in about six minutes. There are also two fuel tanks, capable of holding twenty gallons each, fitted underneath the body of the van at the extreme rear end, and are both filled from

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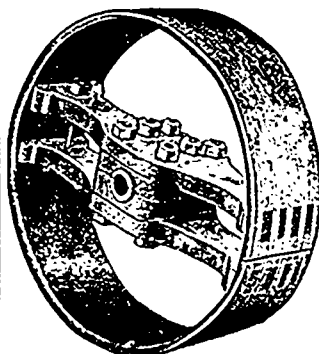
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