

THE ROAD STEAMER AND OMNIBUS.

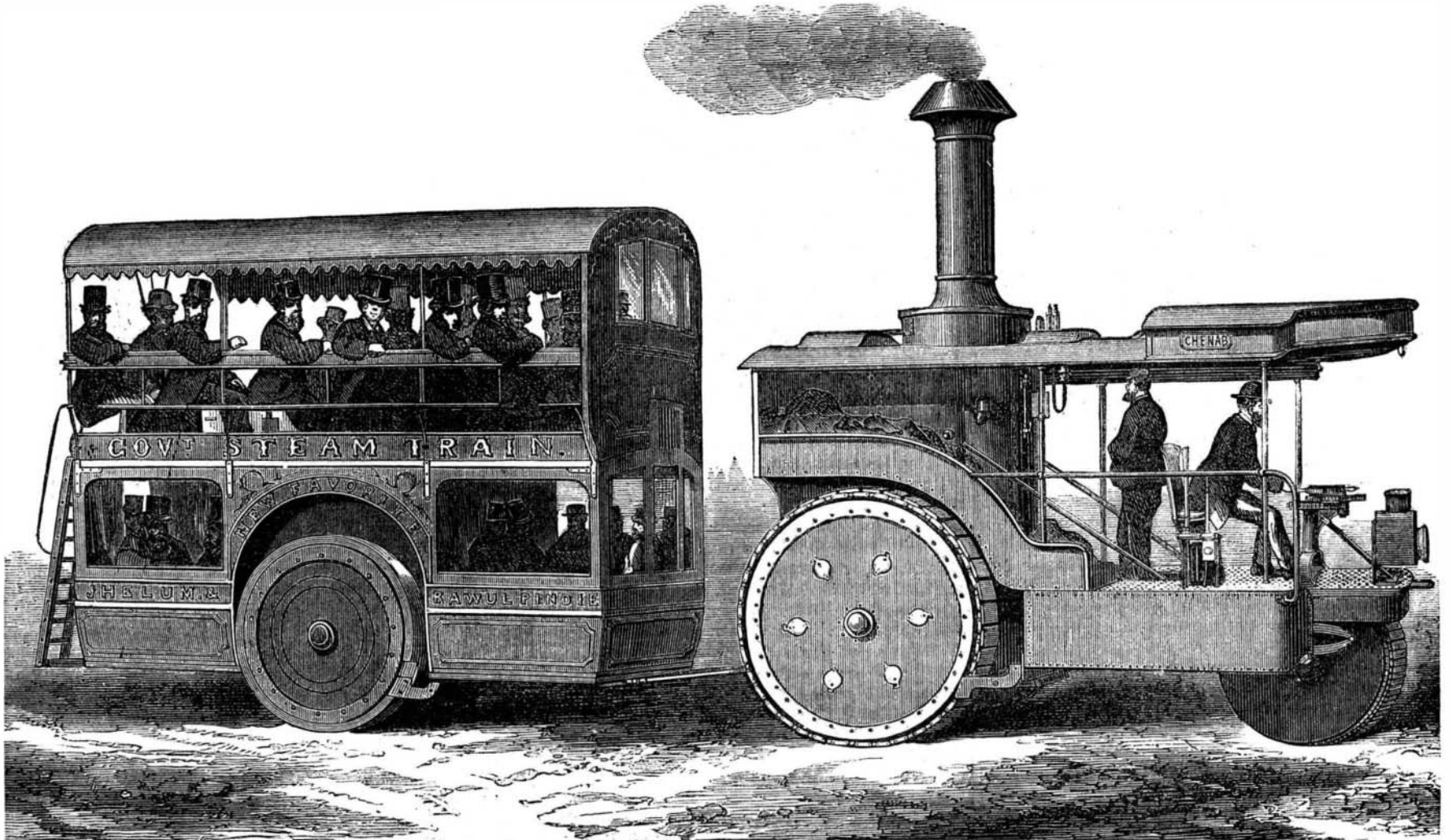
The attention of mechanical engineers and men of business has lately been turned to the use of common roads for haulage by steam power. The difficulty of transporting heavy weights where no railway exists, the increased price and scarcity of horses and of their fodder, the development of productive industry both in India and the colonies, and the preference shown by many farmers at home for steam instead of animal power, have led the English public more especially to take great interest in traction engines and road steamers.

with its omnibus, took place at Ipswich. A large company sat in the omnibus attached to the road steamer, and traveled at the rate of three miles and a half an hour to the racecourse, a distance of about a mile and a half. The road lay through one of the most crowded parts of the town, but the engine and omnibus turned sharp corners with the greatest facility, mounting an incline half a mile long, with a varying gradient of from 1 in 12 to 1 in 25. Having arrived at the racecourse, the engine was started at full speed, running along the course at the rate of twelve miles per hour; then mounting, with the greatest ease, a hill representing a gradi-

is firmly held to bind opposite walls together. It will be seen that the method is cheap, substantial, and practical. For further information address Mr. Goodrich, as above.

The Preparation of Fancy Soaps.

Fancy soaps, which are made in great variety for the toilet, are usually scented with some aromatic oils. For this branch of the trade the ordinary commercial soaps are used, after undergoing a process of refinement; or a soap is specially made for the purpose from almond oil, or the like. Much taste is shown by the best London makers in the selection



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Steam engines were made to run along the common roads many years ago, but have never yet become a commercial success; nor have they been used, with a few exceptions, for transporting goods and passengers to and from towns, or as feeders to main lines of railway, from villages and towns not large enough to support a branch line of rails.

The first designs were simply the adaptation of some well known form of mechanical arrangement to the end of transmitting the rotary motion of the crank shaft of an ordinary portable engine to the road wheels. But, from a variety of circumstances, these engines were not applicable for the purposes of general haulage on common roads. It was not until a completely new engine was designed by Mr. R. W. Thomson, of Edinburgh, that the object was practically attained. These engines have been described in our pages on a former occasion. Their principal feature is the adoption of rings or tires of india rubber round the driving wheels, which are flattened by the weight of the engine, giving the wheels a greater surface of contact with the ground, and consequently more adhesion, than the cast iron or wrought iron wheels usually employed in traction engines, especially on sandy and rough roads. Besides this, the engine is placed on three wheels, instead of four, giving it a smaller wheel base, and enabling it to turn in its own length, and to manoeuvre in narrow and crooked roads. All the various parts are of steel or wrought iron, which renders the engine much lighter than the cumbersome machine hitherto seen on roads.

Our illustration shows one of these engines with its omnibus. It was built by Ransome, Sims, and Head, from the designs of Mr. Thomson and Lieutenant Crompton, appointed by the India Government. It is designed to run, with three more such engines and omnibuses, from Rawul Pindee to the Jhelum, in the Punjab, a distance of about sixty-eight miles, for the conveyance of passengers and mails, and occasionally of troops and baggage.

These engines and carriages are complete, with all the newest improvements that engineering science could devise. The following are their principal dimensions:—Diameter of cylinders, 8 inches; length of stroke, 10 inches; revolutions per minute, 172; working pressure, 140 lbs.; diameter of main road wheels, 6 feet; width of india rubber tires, 14½ inches; their thickness, 4½ inches; fast speed of engine, ten miles, slow speed, three miles an hour; capacity of water tank, 370 gallons; that of coal bunkers, one tun; weight of engine, in complete working order, with water tank and coal bunkers full, about twelve tons.

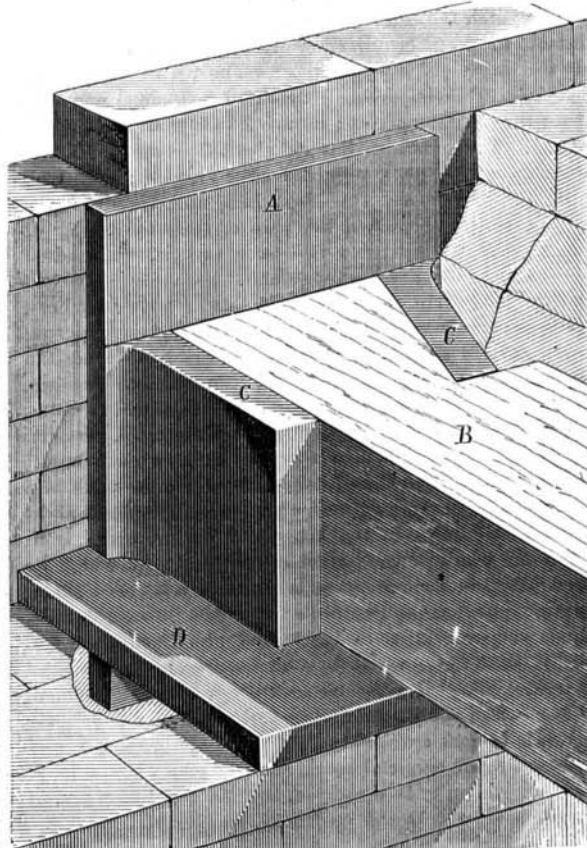
The omnibus will carry about sixty-five passengers, in addition to luggage and mails. It is fitted with the usual steel springs; and, as the wheels are surrounded with india rubber tires, the movement is so easy, at a speed of ten miles an hour, even on a rough road, that it is quite possible to write perfectly when sitting inside.

About the end of May a trial of the first of these engines,

ent of 1 in 10, while all the passengers were delighted with the pleasant movement of the vehicle and freedom from noise of the engine.

ANCHOR BEAM SUPPORT FOR BRICK WALLS.

Our engraving illustrates a method of supporting and anchoring beams to brick walls, invented and patented by William W. Goodrich, of Rondout, New York, Nov. 22, 1870.



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The method consists essentially in casting the supporting and anchoring devices together in a single casting, the parts of which are as follows:

A is a vertical flat plate which is placed between the outer course of brick and the inner ones. The beam, B, rests upon a horizontal plate, D, cast with the vertical plate, A. The end of the beam is dovetailed as shown, the dovetailed portion fitting the recess between two vertical plates, C, cast together with A and D.

In this way the plate is anchored to the wall, and the beam

and combination of the perfumes, which, along with the coloring matter, such as vermilion, yellow ochre, aniline, etc., are usually boiled up with the soap. To facilitate this operation, as a well dried soap does not readily melt, it is usually cut up into fine shavings, and after boiling is well worked under rollers until it presents a uniform appearance. If the soap is intended to be highly scented, or very extensive perfumes are to be employed, the cold process is adopted, as much of the strength of the scent is lost by boiling. In this case the soap is shredded as before, and the perfume and coloring matters well amalgamated with it by being worked in a mortar with a pestle. It is then divided into lumps, and roughly molded with the hand into something of the shape it is finally to assume. After being left on a rack to dry for about a week, it is pressed into a mold, which imparts to the cake the form and device which may be required, and when taken out, the edges are trimmed and the surface polished with the hand.

Oil Proof Rubber for Steam Packing, etc.

James M. Flagg, of Providence, R. I., has invented an improved preparation of rubber for carriage washers, gaskets, belting, and other purposes, where rubber comes in contact with oil, so prepared that the oil will not affect the prepared rubber. The invention consists in combining aluminous clay with vulcanized rubber. The clay which is preferably used, contains by analysis about thirty-nine per cent of alumina, forty-six per cent of silica, thirteen per cent of water, and about two per cent, or a mere trace, of iron, magnesia, and lime. Any appreciable quantity of these last mentioned substances would defeat the object in view, since they would lump and form a gritty surface, and their particles would not contact with sufficient closeness to exclude oil. In preparing the rubber the clay is mixed with the caoutchouc and sulphur, which mixture is then prepared and vulcanized in the ordinary manner, according to the particular use to which it is to be applied. Plumbago may be added to the mixture, or not, according to the use to which the rubber is to be applied. For carriage washers the compound is vulcanized upon an arbor, and washers of the desired thickness are afterward cut off.

This seems an important improvement, and, if it does what the inventor claims, will supply a want long felt.

RECENTLY as a train on the Mount Holly Railroad, near Merchantville, was going at full speed, the engineer saw far ahead a little girl running along the track. He reversed steam and whistled down brakes, but the grade being downward, it was impossible to stop in time to save the child's life. Meantime the fireman, Lewis Ebertson, ran out to the front of the locomotive. Standing on the cow catcher, he caught the child as the locomotive touched her garments, and lifted her out of danger.