

Barbados.

The island of Barbados is the most densely populated part of the earth. This island, with an area of 106,600 acres, contains a population of over 175,000 souls, that is to say, an average of no less than 1,054 people to each of its 166 square miles of territory. The Chinese province of Keang-su, which was at one time ignorantly imagined to be the most uncomfortably crowded district under the sun, contains but 850 moon-eyed Celestials to the square mile, while East Flanders, in Belgium, the most thickly populated neighborhood in Europe, can boast of only 705 inhabitants to the square mile. Coming nearer home, Westchester Co., New York, with a territory three times as large, has only four-sevenths as many people as are packed upon this thronged, man-ridden Caribbee island. If the Empire State were as thickly settled as Barbados, it would boast a population of 60,000,000. Of the 175,000 souls in this island, 9 per cent are whites and 91 per cent are blacks or of mixed blood.

Mistakes of Life.

Somebody has condensed the mistakes of life, and arrived at the conclusion that there are fourteen of them. Most people would say, if they told the truth, that there was no limit to the mistakes of life; that they were like the drops in the ocean or the sands of the shore in number, but it is well to be accurate. Here, then, are fourteen great mistakes: "It is a great mistake to set up our own standard of right and wrong, and judge people accordingly; to measure the enjoyment of others by our own; to expect uniformity of opinion in this world; to look for judgment and experience in youth; to endeavor to mould all dispositions alike; to yield to immaterial trifles; to look for perfection in our own actions; to worry ourselves and others with what cannot be remedied; not to alleviate all that needs alleviation as far as lies in our power; not to make allowances for the infirmities of others; to consider everything impossible that we cannot perform; to believe only what our finite minds can grasp; to expect to be able to understand everything."

IMPROVED CONCRETE MAKING MACHINE.

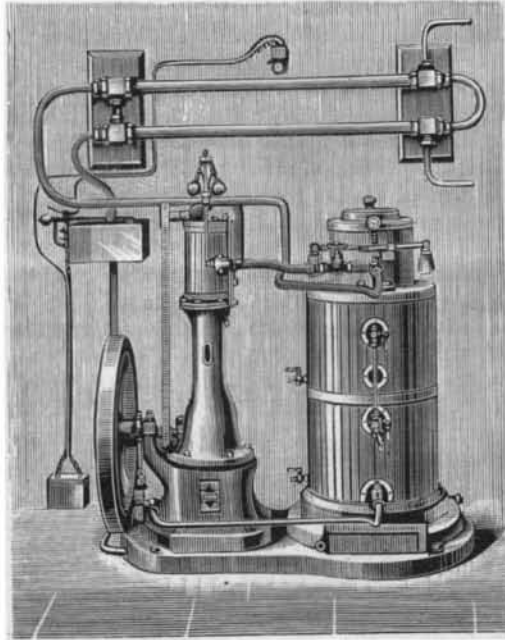
The Carey-Latham machine consists essentially of an arrangement of elevator or dredger buckets, a cement hopper, and a mixing cylinder. The sand and ballast are gathered by the buckets and delivered to the mixing cylinder—the proportion of sand to ballast being regulated by the number or capacity of the buckets employed. The cement or lime is fed from the hopper by an archimedean screw, the pitch or speed of which can be adjusted to suit the quantity required to be delivered in proportion to the sand and ballast.

The cement is delivered, says *Engineering*, in a continuous stream, and together with the load and ballast, which are fed in by the dredger buckets, is passed to the revolving cylinders, where the whole becomes intimately mixed in the dry state. By the time the materials have arrived at about the middle of the mixing cylinder they have become thoroughly amalgamated, and water is then admitted in the requisite quantity by means of a perforated hollow shaft, around which the cylinder revolves. The operation of wet mixing is then performed, and the complete concrete is delivered continuously from the open end of the cylinder. An important feature of the machine is the arrangement of mixing blades, which revolve in the same direction as the cylinder, but at a slightly different speed; this has the effect of increasing the stirring or mixing action, and overcomes a difficulty which was found to exist by the setting of the cement when fixed blades were employed. The blades in moving at a quicker speed constantly change their position with respect to the inside of the cylinder, so that no cement can accumulate and set upon them. The cylinder is horizontal, but as the blades are of a curved or screw-like form, the materials are lifted and tumbled over and over, and at the same time forced toward the open end of the cylinder.

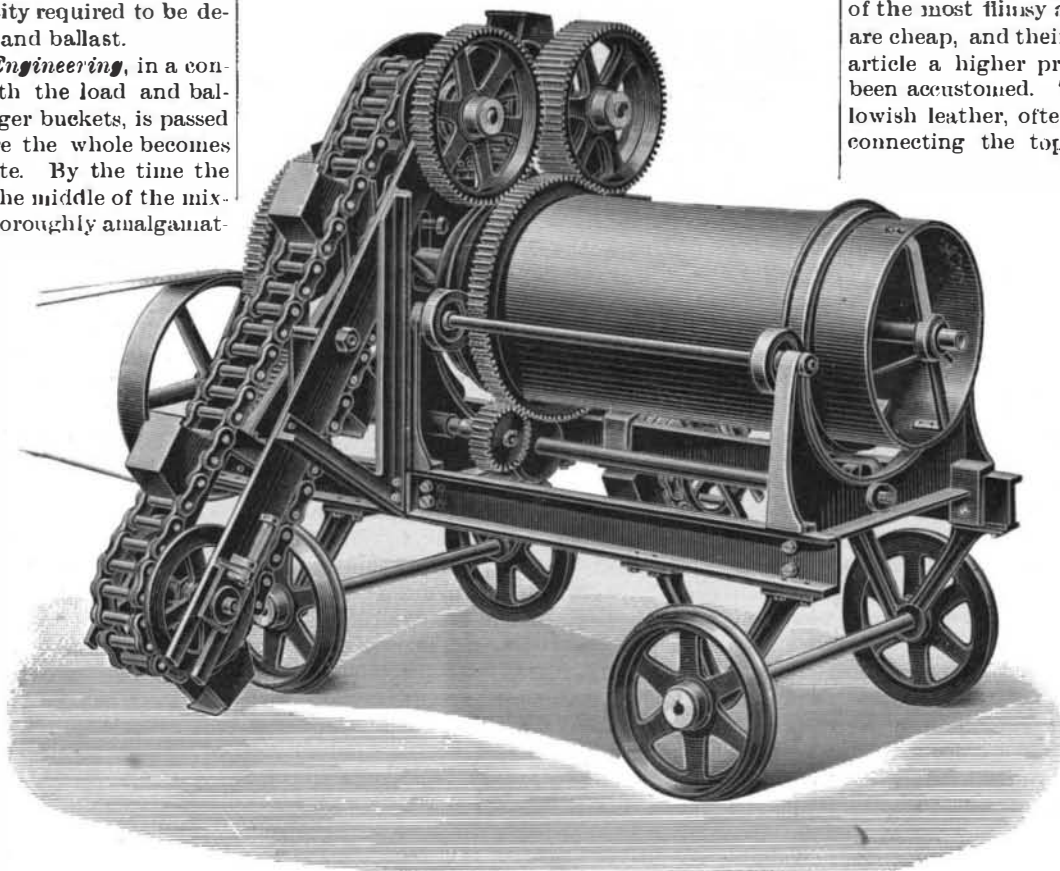
At the Newhaven Harbor Works, two of Carey & Latham's machines have been employed in making over one million tons of concrete; but numerous improvements have since been effected in them, and the machine we illustrate differs in several material points from the former pattern. It is now constructed in various sizes suitable for making five to seventy cubic yards per hour, and we understand Messrs. Ingrey, Poore & Latham, London, have supplied several of 20 yards and 70 yards capacity to some of our large contractors.

A SMALL CONDENSING ENGINE AND BOILER.

The engine and boiler, illustrated herewith are designed for use in small workshops, rural residences, etc. Mr. Pifre, the maker, has designed the boiler so that it only requires an occasional supply of fuel, and the steam is condensed to return the water to the boiler. The principle adopted for firing the boiler is that of a cupola or a slow combustion stove, having a column of fuel which burns away at the bottom and allows the remainder gradually to descend. The boiler is placed

**A SMALL CONDENSING ENGINE AND BOILER.**

on the same baseplate as the engine, and is composed of an outer shell with an internal cylindrical firebox, standing upon an ashpit cast with the foundation plate, which is provided with slides for regulating the air supply. The lower part of the firebox contains a number of vertical water tubes ranged round the circumference and jointed with bends to the firebox shell. For the small sizes, from $\frac{1}{4}$ to 1 horse power, the firebox has the same diameter from top to bottom of the outer shell, leaving an annular steam and water space in which the circulation of the water is promoted by the water tubes. Into the upper part of the firebox a cylindrical filling chute is inserted, which reaches to about the middle of the firebox. Above the firebox and round the upper part of the filling cylinder

**IMPROVED CONCRETE MAKING MACHINE.**

there is a smokebox with a lateral pipe to the chimney. Coke or charcoal is used as fuel, and the entire lower part of the firebox and the chute are filled with the same. The coke burns in the fire box and the combustion gases pass through the annular space between the firebox and the filling chute. In proportion as the fuel on the grate is consumed, the column of coke sinks down, and at sufficiently long intervals the chute is filled again to the top. This does not interfere with the combustion, which can be regulated by the slides on the ashpit and a damper in the chimney pipe, and the evaporation when once adjusted proceeds very regularly. For powers above one horse, the firebox reaches only to about the middle of the height of the

boiler, and the filling chute is riveted to its top, a number of tubes being inserted between the annular firebox top and the top of the boiler.

The engine is of the steam-hammer type, and possesses no peculiar features, except that the cylinder, piston, and slide valve are made of bronze, so as to require no lubricant besides the steam. It is fitted with a governor and a feed pump driven by an eccentric. The steam, on escaping from the cylinder, is passed through a condenser, which is placed out of the way against a wall, and consists of two concentric pipes. The steam passes through the inner pipe, while in the annular space water circulates in the opposite direction to the flow of steam, a reservoir in which the water can cool itself again being, of course, required for this purpose where there is no available cheap supply which can be allowed to run to waste. The condensed water flows into a cistern, from which the feed pump draws. The safety valve on the boiler also discharges into the condensing pipe.

These small motors are very cleanly, according to the *Mechanical World*, of London, there being no continual firing with a shovel, and they are intended to be especially useful for those who desire small powers intermittently.

French Shoes.

The following is from special reports which have just been made to the Government at Washington by the consuls and commercial agents of the United States:

The French have peculiar tastes, and believe that their shoes are inimitable in material, workmanship, and, above all, in style. Take, for instance, their ladies' dress slipper, the distinguishing features of which are the pointed toe and a high heel, sloping from the place where the heel belongs to the center of the foot. This peculiar structure is extended to their walking shoes, and it is a sad fact that they have been sent in countless numbers to America and other countries, and have been readily sold, when to the casual observer they would simply appear to be refined instruments of torture. Wooden shoes and wooden soles, cardboard and straw soles, with prunella and cloth uppers, are cheaply manufactured, and find favor among the working classes. The French have possessed themselves of the secret of cheap manufacturing, so that, while maintaining a fair exterior, they can deteriorate the quality to such an extent that it is more than an offset to any foreign competition.

The duties are not excessive, but the great obstacles to the importation of boots and shoes in this district (Marseilles) are of another character. These are the willingness of the people to purchase and wear shoes of the most flimsy and inferior quality, provided they are cheap, and their unwillingness to pay for a better article a higher price than that to which they have been accustomed. The soles are of soft, spongy, yellowish leather, often underlaid with paper; the seam connecting the top with the vamp soon gives way, and in wet weather the "counter" breaks down, and permits the heel to bulge beyond the soles. These goods are the product of hand labor in hundreds of small shops and factories throughout this district, and they form the staple footwear of the people, who, conservative and severely frugal in all things, cannot see why they should pay from 26f. to 30f. for one pair of good shoes when the same sum will purchase three pairs of new ones. In this, as in other articles of dress and luxury among the French working people, it is the new thing which counts.

Boots and shoes for men's wear have been imported here (Lyons) to some extent from Vienna, in Austria, and are meeting with some success. They are quite perfect in elegance and shape, but objection is made to the quality of the soles, which are said to be inferior. Germany is also supplying the French markets with felt slippers to a considerable extent, the sole either of felt or leather, as the case may be. England is exporting so very small a quantity to this country that it is scarcely worth mentioning. Boots and shoes manufactured in the United States are quite unknown in this consulate district. Large quantities of caoutchouc come from there, but the fabrication into boots and shoes is perfected here in France.

A CALCULATION made by Mr. Corthell of the figures of the mile-long railroad train drawn by a single locomotive establishes that there were 3,253 tons weight on this train, which was drawn by a single 55 ton engine. This would be more than the weight of many steamships with their cargoes.