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Rail-Road News.

Inventor of the Tubular Bridge.

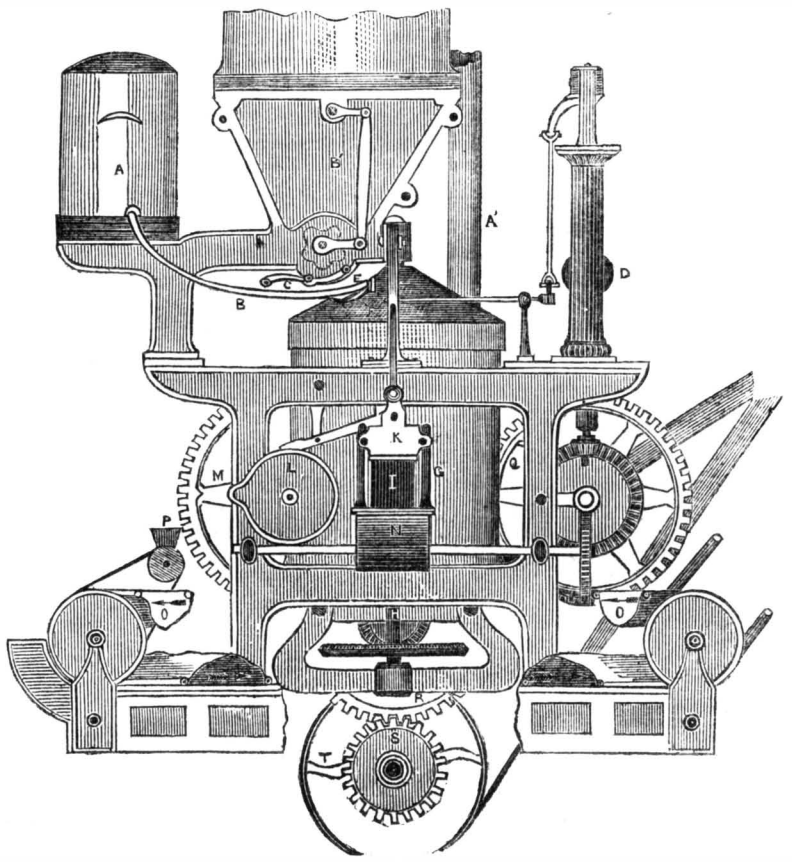
Almost every new discovery or invention has been claimed by more individuals than one. At present there is a keen controversy going on between Mr. Fairbairn and Mr. Stephenson, as to the Menai Bridge. We do not, in the meantime, give any opinion as to the respective claims of the two engineers. We believe that the idea of the practicability of a metal tube, as a roadway for locomotives, either as a bridge over a river, or as the lining of a tunnel beneath the bed of it, was suggested by James Petty, Esq., accountant in Edinburgh, in the beginning of 1845. Mr. Petty had the expense of such a tube for crossing the Tay calculated by an engineer in Dundee, and the result submitted to Mr. M'Farlane, of Perth. Mr. Petty's suggestion was communicated to Mr. Bateman (Mr. Fairbairn's son-in-law), and was discussed in a meeting of the Society of Civil Engineers, held in the house of Sir John Rennie in the month of March, 1845.

To Mr. Stephenson belongs the stupendous idea of spanning the Menai Straits by a tube, suggesting the egg shape as probably the most suitable form. To the practical abilities of Mr. William Fairbairn, of Manchester, with the assistance of Mr. Eaton Hodgkinson, professor at the University College, London, was confided the difficult experiment of ascertaining this momentous point. Long foiled in his arduous task, the indefatigable Fairbairn, acting on a suggestion of his friend, the late Mr. Smith, of Deanston, to use cells, top and bottom, to resist thrust and tension, (as at these points the fractures had invariably taken place), that gentleman has formed the successful structure, now one of the wonders of the world. From Mr. Smith was also gleaned the idea of the rivetting machine, since patented, four of which constructed the tubes, and a certain share of the patent premium was on this account assigned the deceased. It ought to be observed that a tube as a bridge and a lining for a tunnel, as suggested by Mr. Petty, are as different as day from night—the latter having a continuous foundation.—[Glasgow Daily Mail.

New Project of a Railroad.

The Pottsville Miners' Journal says that preparations are making for an application to the Pennsylvania Legislature for a charter for a new railroad from that place to Philadelphia. It is estimated that the work can be done and the road equipped for about $7,000,000, to carry coal for one dollar per ton, and pay a handsome dividend to the stockholders. The proposition at present is to run the road on the opposite side of the Schuylkill, and to connect it with the Norristown road. A grant of two millions of acres of the public lands is to be asked for by the representative of the Congressional District, to aid the projected improvement.

BREAD MAKING AND BAKING MACHINE.---Figure 1.



We here present engravings of a machine for mixing dough, cutting and baking it, all in one continuous operation. It is the invention of Messrs. Robinson & Lee, of Glasgow, Scotland, has been patented in England, and caused no small stir in London, Glasgow, and other cities, where it has been introduced.

Figure 1 is a front elevation of the loaf machine, complete for work; figure 2 is a front elevation of ovens and boiler; the boiler furnace and two of the ovens being represented in transverse section; and figure 3 is a sectional plan of the boiler, flues, and surcharging steam pipe. In connection with the machinery, the inventors do not use yeast to *raise* their bread, but aerated water, (water charged like soda water, with carbonic acid gas.) This water as a substitute for yeast, is contained in a fountain, A, on a bracket at the back of the machine. This fountain is supplied with the fluid from a separate reservoir, in such a manner as to maintain a uniform rate of pressure within it suitable for the exigencies of the machine, which derives its supply from it by the pipe, B. The flour-hopper is at B'; it has in it a horizontal spiked bar, or shaft, X, arranged to work with a compound movement, partly lateral and partly revolving, being connected by a crank and link to a second crank of similar size, carried on the end of the flour-feeding roller-shaft, X, so as to obtain the requisite movement for giving the flour in the hopper a light, even, and unintermittent delivery to the feed-roller. This roller is of wood, and is fluted or grooved, as represented by the dotted lines, and has a clearing wire, C, bearing against its under surface, to prevent the flour cohering.

Figure 2.

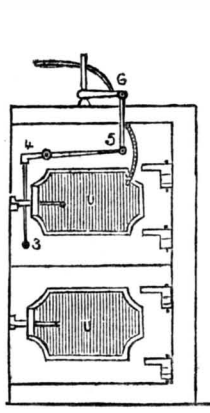
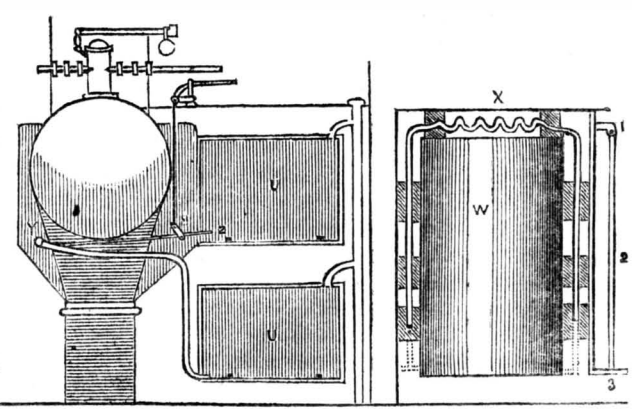


Figure 3.



For the regulation of the supply of materials, the governor, D, is used, its sliding ring at the top being made to act upon a horizontal spindle working a stop-cock in the end of the liquid supply-pipe, B. E is the mixing cone of hard wood, furnished with a cover, of galvanized iron, and having a scraper of the same material on its under surface to guide half-formed paste into the kneading-mill, or drum, G, which is a cylinder or drum of hard wood, 1½ inches thick, with twelve horizontal arms fixed in it at regular intervals, so as to allow the passage between them of similar arms on the kneading-shaft, H. This shaft is carried in top and bottom bearings, and works through a stuffing-box in the bottom of the drum, the mixing cone being keyed upon its upper end; its revolving arms are set at an angle of about 30° in an opposite direction to those on the drum. A short brass tube, I, is screwed to the side of the drum, over an aperture formed in the latter, as a port-hole for the escape of the dough, which, as it exudes, is cut off into pieces of the proper size for the intended loaves by the vertical sliding knife, K. This knife receives motion, at the required intervals, from a lever, carrying on its shorter end a stud working in a groove in the back of the cam, or guidewheel, L, the speed of which is capable of regulation by the change-wheels, M. On the delivery of the dough from the mill, it is conveyed by a wooden roller, N, to the moulding frame, O, the roller being driven at a slow rate by a worm gearing with a worm-wheel on the end of its shaft.

The moulding frame consists of a frame with two concave pulleys and an endless cloth, part of which last is removed in our engraving to show the lower gearing. The cloth is traversed by bands, or pitch-chains, upon the concave pulleys, beneath the dredging-box, P, in which a revolving circular brush keeps the cloth, and its piece of dough under conveyance, well dusted with flour. In the return movement of the cloth, it passes over a fixed block of wood, hollowed out on its upper side, to form, with the contour of the pulleys, a complete cylindrical opening, or passage. Through this passage the dough is conveyed, as represented by the arrows, being rolled or pressed in its transit into a ball or globe, ready for conveyance to the oven by the baking truck.

Instead of supplying flour from the hopper, a "half sponge," may be conveyed by the vertical tube, A The gearing demands little explanation. The oblique shaft, A, worked from the gearing beneath the govenor, drives the flour-feeding roller; the whole being put in motion by the main-pulley shaft, carrying a spur-wheel, S, gearing with the wheel, R, which runs at the rate of 30 revolutions per minute; at which velocity the machine will produce a ton and a half of a loaf-bread, or a ton of biscuit per hour.

The baking operation is carried on in steam-heated ovens, shown in fig. 2. The ovens, arranged four together, U U, are built up with a steam-boiler between the two pairs, one of the pairs being proving or rising chambers, into which the fermented or barm bread is first placed on commencing to bake. They are heated by flat rectangular steam chests, forming their top and bottom. The other pair are steam-ovens, heated by coiled pipes, as at X, which pass through the boiler furnace under a protective covering of fire-tiles, and are kept at a red heat. After the steam from the boiler, W, has heated the chambers in the first pair, it is passed through the coiled pipes, X, by which means it is surcharged with heat, without acquiring any additional pressure, and in that state is blown into the ovens—shown in section by the pipe, Y, having discharge branches, Z Z—acting directly upon the dough contained in them. To carry off the steam and vapor, trumpet-mouthed tubes are placed in the tops of the ovens, and in connection with an external vertical pipe, which conveys the discharge to a condensing receiver, where, when quite cold, the matter blown out is charged with carbonic acid gas, with the addition of salt, for the supply of aerated liquid fountain. To afford the necessary means of regulation of the heat of the ovens, a species of a heat-regulator is used. In the side of the oven next to the boiler are two brackets or studs, 1 and 2, into one of which a copper rod is securely fixed at its end, resting loosely in a collar in the other. This loose end projects through a hole in the oven front to a vertical lever, 3, connected to a second horizontal one, 4, and the expansion and contraction of the copper rod acts, through these movements, upon the index lever, 5, a link from which passes upwards to a bell-crank, acting upon a valve, 6, in the steam ingress valve.