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RAIL-ROAD NEWS.

The Railway Carriage System in England.

The "New York Daily Times," of Monday, the 20th, had a really excellent article on the conservative stupidity of the construction and management of cars on the English railroads. It seems the Editor came near being offered up in a Fire-worshipper's bonfire—the car in which he was riding having been set on fire by a spark. This was by an accident, but only for an accident the car would have been burned up, as the engineer saw the smoke of the car by accident, and stopped his engine; there was no way to communicate with the engineer as with us, by a rope passing along from roof to roof, by which the conductor can make it strike a bell at the ear of the engineer. A gentleman wrote an article for a London paper, next day, giving an account of how we manage things in America, so as to prevent such accidents, but the London Editor, with a supercilious contempt for any thing new and useful coming from such a quarter, did not appear to think it worth publication. There are some excellent things about the management of English railroads, which are worth copying by us, but there are as many good things on our railroads, which are objects that are worthy for them to copy after. The mode of communication with the engineer is one of them, and we are the more surprised that this plan has not been adopted on the English railroads long before this, for this plan was illustrated in the "London Patent Journal" of May 22, 1847, four years before the accident took place, as described in the "Times." The American cars are far superior to those on the English railroads; we have no second class cars for the inferior classes, because all our citizens rank as gentlemen, and every man has his own coat of arms. It is a great shame to England that, with all the freedom of the press there, and with a constitutional government, everywhere a person goes, by steamboat and railroad, there is the manifest bar set up, to keep the working classes from coming between the wind and the nobility.

A Good Arrangement.

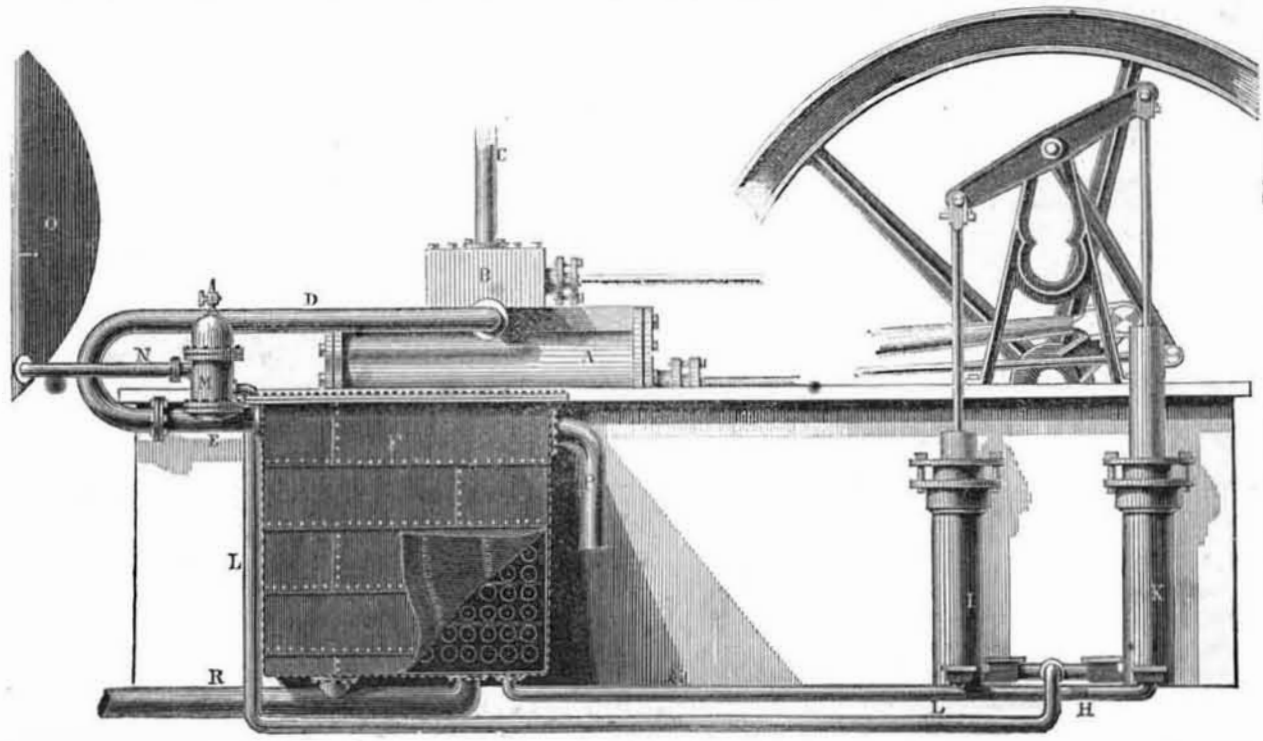
An arrangement has been made between the New York and New Haven, and Hartford, New Haven and Springfield Railway Companies, by which passengers are ticketed through without the annoyance of changing cars at New Haven. This arrangement removes a hitherto great objection to this route, and we feel assured that it will command an increased patronage.

A Mastadon in Connecticut.

The bones of a huge mastadon were lately discovered in New Britain, Conn. Where is it that the mastadon has not been a wanderer over our country? When it lived, there truly were giants in the earth in those days.

The machinists of Boston and South Boston are making extensive preparations for celebrating the anniversary of the bringing into operating of the ten hour law, which will come off the 1st of November.

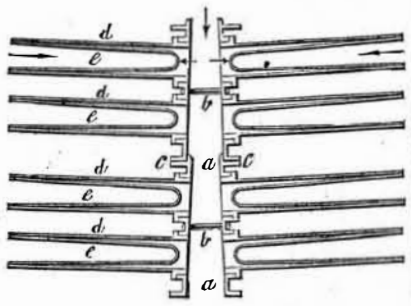
MILLER'S MONOZYMATIC CONDENSER FOR STEAM ENGINES.---Fig. 1.



The accompanying engraving are views of the improved Condenser, and its application to steam engines, for which a patent was granted on the 21st of October, 1851, the claims of which will be found on page 54 of our last volume. We refer to the claim because the Patent Office Report calls it a "Sugar Vacuum Pan," while the claim embraces the peculiar construction and arrangement of the tubes for condensing, which are applicable to condensers for both steam engines and sugar vacuum pans.

Figure 1 is a side elevation, showing the condenser applied to a steam engine; figure 2 is a vertical section, showing the interior of the condenser, and the form and arrangement of the tubes. The object of this condenser is to condense the steam as it passes from the exhaust pipe of the cylinder, by the application of cold water to the outside of the metal separate from the steam, and to return the condensed steam—pure water—as feed, to the boiler. The primary object of a condenser is to obtain a vacuum behind the piston, by the sudden re-conversion of the steam into water, thereby reducing its bulk. The vacuum obtained in common condensing engines, in good order, is about 13 lbs. to the square inch, which is just about 2 lbs. less than the pressure of the atmosphere, and is therefore so much gain to the engine, excepting the power required to work the air-pump, which must be deducted. The common method of condensing, is to let the steam come in direct contact inside of the condenser, with the cold condensing water, and keep pumping out the hot, at 100°, and supplying the condenser with cold water. The principle of condensing the steam by the outside application of water, is older than the injecting of cold water among the exhaust steam, but it has always been considered an inferior mode of condensation. Let us first describe this condenser, then dwell briefly on the principles and applications of the two modes of condensing, and the plans employed for these purposes.

FIG. 2.



In fig. 1, A is the cylinder of the steam engine; B is the steam box; C is the steam pipe, which feeds the cylinder and works the engine. D is the exhaust pipe, it conveys the steam from the cylinder after it has acted on the piston, to the condenser, by the pipe D E, This exhaust steam is allowed to pass into a heating vessel, M (the object of which will be explained hereafter) and then passes into the condenser, F. The steam is condensed in the inside of the tubes in the condenser by the application of a constant stream of cold water on the outside of the steam tubes. The cold surface water is supplied by a pump (not required to be shown) through pipe R; it rises up in a heated state by the radiated heat of the steam and flows off continually at the top through pipe P. The condensed steam inside falls to the bottom of the condenser in the state of water, and is pumped from the condenser through pipe L, and forced into the boiler, as pure feed water, by the two air-pumps, I K, which thus serve as feed pumps; the condensed steam in the state of cold water, as it is being forced by the two pumps to the boiler, through the pipe, L L, passes through the strong metallic vessel, M, and is heated to about the boiling point by the exhaust steam from the cylinder, and then passes into the boiler, O, through the pipe, N, at a very high heat. Whatever condensation takes place in heater M, the water flows easily into the condenser proper through pipe E. The great object in condensing the exhaust steam to save power, is to get a good vacuum behind the piston, and the great object in saving fuel is to return the water to the boiler, as hot as it is possible to do so, and in as pure a state as possible; this is believed to be successfully accomplished by this arrangement. There is an air chamber on the top of heater M, to let the accumulated elastic gas and air in the water escape from time to time; this can easily be done by the engineer, according to where the heater is situated, by the cock on the top of the air chamber. The arrangement and office of this condenser is now explained.

It was a great improvement in sudden condensation, when the cold water was first applied inside of the cylinder—injected among the steam—instead of on the outside, because it requires so much cold water to condense the steam—no less than 22·24 cubic inches of water to one of water converted into steam. James Watt endeavored, by his first condenser, to obtain enough of cooling surface to condense the steam inside by using thin hollow chambers, but he soon resorted to mixing the cold water with the steam again. Hall's Condenser, for the same purpose, consisted of a faggot of small copper tubes, but this condenser, we believe, is nowhere in use. Plenty of cooling surface can be obtained by pipes, &c., but owing to the expansion and contraction of the metal, at the joints, there is a continual tendency to leakage, and a leak destroys the whole object of the condenser. To construct a condenser upon principles to obviate the evils of leakage by the expansion and contraction of the metals, has been the object and aim of Mr. Miller, who has spent years in experimenting, expending thousands of dollars to obtain the grand desideratum.

Fig. 2 is a series of tubes united together by screw joints, with vulcanized india rubber between the flanges, *b*. The steam comes from the exhaust pipe, E, fig. 1, into the condenser by the centre tube, *a*, shown by the arrow, and has free passage at once to all the condensing tubes. These tubes are of a peculiar construction, each one is double, and the interior end, where the steam at first strikes it, is round and unconnected, and free to expand and contract, without affecting the joints. The steam passes into each pipe, as shown by the two short arrows at *a*, and the water goes into the inside pipe, *e*, as shown by the arrow, and is also applied on the outside at *d*; there is, therefore, a double cooling surface for the steam in each pipe; now it will, we presume, be generally admitted, that such a form of tubes, to make a perfect condenser, was not, in any likelihood, discovered by theory; it was not, the construction of these tubes is the result of experiment, and a condenser upon this principle, which has been used for months on an engine at the North Point Foundry, Cobb, Mason & Hill, Jersey City, has tested it so thoroughly with salt condensing water from the dock, that, by the candid statements of Mr. Hill, "it has not failed in any point, it has saved nearly one-third of fuel, and accomplishes all that can be desired of it." This condenser, therefore, is certainly worth the disinterested examination of all our engineers, and those especially interested in ocean steamers, and the steamboats running on the Mississippi. The old air pump is not required, the two small pumps, I K, acting as feed pumps, do not