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Morley's Patent Railroad Track Chair.

Above are engravings of a new rail joint chair, of more than ordinary merit, for which letters patent were granted to James H. Morley, of St. Louis, Mo., on the 2nd of December 1856.

Figure 1 is an end elevation. Figure 2 is a perspective view *from below*, and figure 3 a longitudinal section on the line S S, in figure 1. The chair has been proved to be extraordinarily effectual in holding the ends of the rails perfectly stiff, so as to make the strength and elasticity of the track as perfectly continuous as possible, and although its expense, (some 70 or 80 cents per chair) is considerably greater than any of the common cast iron, or even than the most approved continuous lip wrought iron chairs, it is far less than the elaborate fish joints employed on some heavily worked roads.

A A are the rails to be joined. H H shows a chair in place, composed of two parts, one on each side the rail. D D are bolts passing through each part closely underneath the rails, drawing the two parts of the chair together by means of the nuts, R, causing the parts of each, which we may term the lower and upper jaws, B B and C C, to grip firmly the flange of the rail on its top and bottom, the chair not touching the edge of the rails at F F. The upper face of the lower jaw, B, is slightly convex in its longitudinal section as shown in figure 3, and the lower face of the upper jaw is correspondingly concave, giving to the joints a tendency to rise slightly as the two parts of the chair are drawn together by bolts, D, and also preventing a too rigid gripe of the guides on the rail. The upper jaw touches the rails only at the ends of the chair, and the lower jaw touches them only in its center, on the ends of the rails, as shown in figure 3, so that the elasticity of the rail thus eases the jaws from their gripe, when the load is near the center of the rails, and allows the rails to move longitudinally in the chair at that moment, as changes of temperature may require. The rails are notched near the ends in the usual manner, and lugs or stops not represented are cast in the chair on the inside to fit the notches to prevent the rail from working out of the chairs; E E are notches where the chair is spiked to the cross tie or wooden sleeper of the track as usual.

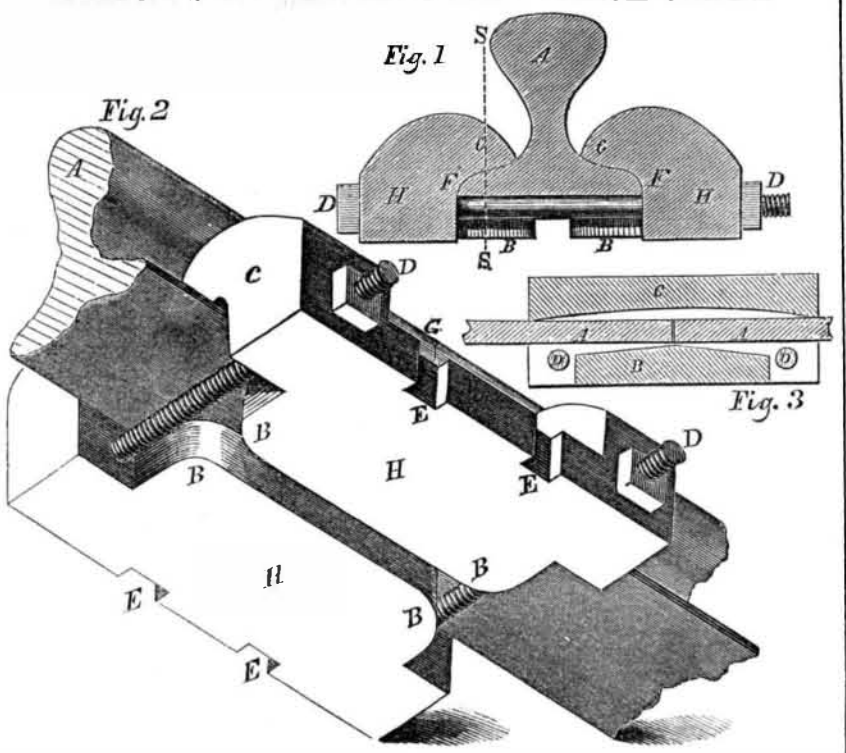
The bolts, D D, being below the jaws, act as a fulcrum in a manner to cause the jaws to bite the rail the harder while the load is on the joint.

The form given in the drawings is of a cast iron chair that has been in actual use on several miles of road during the past nine months, the exterior may by suitable machinery be made of wrought iron, if preferred.

The chair has been successfully used to some extent by placing the joints between the cross ties, so as to leave the chair altogether unsupported and free to spring like other parts of the rails. The external form may be changed with economy when thus used.

Experience and the opinions of some of the most prominent practical railroad men, lead to the belief that this makes one of the best joint fastenings in use. It effectually

MORLEY'S PATENT RAILROAD TRACK CHAIR.



braces the joint so as to prevent its settling under the weight of the heaviest engine, and this, too, on an unballasted road bed. The battering of the ends of the rails, which takes place with most chairs now in use, is effectually prevented by this one, as it renders any considerable working or sinking of the ends of one rail below its fellow impossible. These advantages, together with its cheapness and the ease with which it can be adapted to old tracks of whatever pattern of rail, recommends it to the attention of railroad companies.

Further information may be obtained by addressing the patentee as above, or Samuel Small, Esq., Boston, Mass.

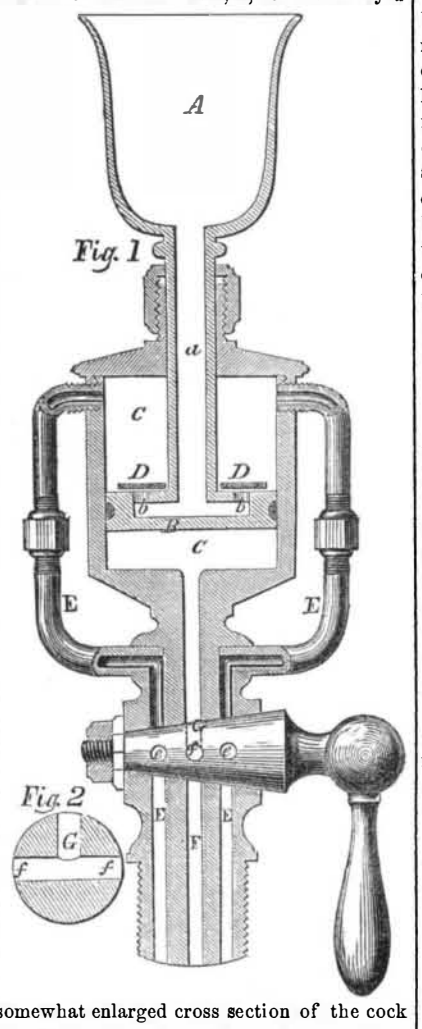
Henwood's Lubricator.

Various devices for feeding oil into the steam chests and working cylinders of steam engines to lubricate the valves and piston by the aid of two cocks, hand pumps, etc., have been adopted at various times, and many steps toward perfection have gradually been attained.

The accompanying cut illustrates an excellent device for the purpose, invented by Mr. John Henwood, of this city, being an improvement on his lubricator patented March 10, of the present year. It works with a single cock, and injects the oil very certainly and speedily by simply turning the said cock one fourth of a revolution. It is only applicable to engines in which a tolerable pressure of steam is employed, as it might be liable to fail under pressures of only from three to ten pounds above the atmosphere, as are employed in some English engines.

A is a small cup or funnel, in which the oil is poured. *a* is a smooth tube connecting A to B, which latter is a hollow piston. *b* are holes in the top of B, and D is an annular valve of thin metal. The oil poured into A, descends into B, and lifting D, rises into the cylinder, C. The cock represented in the stem below this cylinder, is the only one employed, and the construction might be still further simplified by dispensing with one of the two passages E, but we will proceed to describe it as now constructed. The passages, E, lead from the top of C, and the passage, F from the bottom. By turning the cock quarter round, the holes, *e e* and *f*, coincide with and continue the passages, E E F, so that the pressure of the steam is immediately felt on both sides of the piston, B, but as the tube, A, is of considerable area, and of course prevents the piston from feeling any other than the atmospheric pressure on that part, the pressure on the under side is so much greater than on the upper, that it rises and drives the oil through the passages, E E, into the steam chest or other part to be lubricated.

The piston, B, is now nearly at the top of the cylinder, C, the slight space above it being filled with oil, and the whole cavity below with steam at full pressure. But by turning the cock back to the piston represented in our engraving, the hole, G, therein (which communicates with the hole, F, as shown by a



somewhat enlarged cross section of the cock in figure 2) allows the escape of the steam from the lower portion of C, through a side opening, and both sides of B being now subject only to the ordinary atmospheric pressure, it descends by gravity to its first position ready for a repetition of the operation; or in case the friction should chance to prevent its spontaneous descent it can readily be forced down by a slight pressure with the spout of the oiler when it is next used. We consider the apparatus a cheap and very convenient means of lubricating in every case where the entrance of the oil is resisted by any fluid at a considerable pressure.

For further information address the inventor, in care of Messrs. Mollers, Shotwell & Docher, sugar refiners, corner of Vestry and Washington streets, this city.

Turkish Cement.

The Turks use common red earthenware pipes with socket-joints, to convey water from springs to reservoirs and fountains. They make and use mortars and cements as follows:—

Mortar.—Fresh slacked hydraulic lime, one part, by measure; pounded brick or tile, finely sifted, one part, by measure; chopped tow sufficient to mix into the consistency of ordinary hair mortar. The ingredients are mixed dry immediately before use, and then well incorporated by the aid of water; the mortar is used fresh.

Cement.—Fresh slacked hydraulic lime, one part, by measure; pounded brick or tile, finely sifted, half part, by measure; chopped tow as above. The whole is mixed with oil, in place of water. The earthenware pipe-joints are made water-tight with this cement.

Hard Cement.

The following cement has been used with great success in covering terraces, lining basins, soldering stones, &c., and everywhere resists the filtration of water. It is so hard that it scratches iron. It is formed of 93 parts of well-burnt brick, and 7 parts of litharge, made plastic with linseed oil. The brick and litharge are pulverized; the latter must always be reduced to a very fine powder; they are mixed together, and enough of linseed oil added. It is then applied in the manner of plaster, the body that is to be covered being always previously wetted with a sponge. This precaution is indispensable, otherwise the oil would filter through the body, and prevent the mastic from acquiring the desired degree of hardness. When it is extended over a large surface it sometimes happens to have flaws in it, which must be filled up with a fresh quantity of the cement. In three or four days it becomes firm.

Drawing a Magic Circle.

Reuchlin, an Austrian sage, was once detained in an inn when it was raining very heavily, and, of course, had a book with him. The rain had driven into the common room a large number of persons, who were making a great noise. To quiet them, Reuchlin called for a piece of chalk, and drew with it a circle on the table before which he sat. Within the circle he then drew a cross; and also within it, on the right side of the cross, he placed with great solemnity a cup of water; on the left he stuck a knife upright; then placing a book—a Hebrew one—within the mysterious circle, he began to read, and the spectators who had gathered round him, with their mouths agape, patiently waited for the consequence of this conjuration. The result was, that he finished the chapter he was reading without being distressed even by a whisper of disturbance.

G. W. Kendall, formerly of the New Orleans *Picayune*, is farming in Texas, and experimenting upon the Chinese sugar cane. He says it will stand a drouth better than any thing he has ever seen.