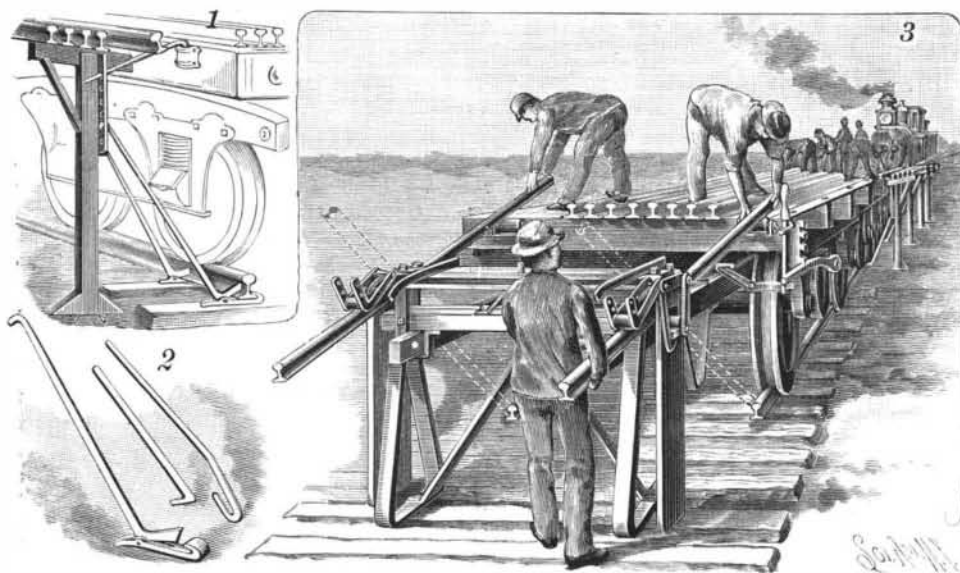


AN IMPROVED TRACK LAYING APPARATUS.

An apparatus designed to lay rails to perfect gauge, with economy of time and labor, is illustrated herewith, and has been patented by Mr. Fredrick Herman, of Redfield, Dakota Territory. It consists of a rail-carrying car and rail placer, the car having double-flanged wheels which lap over both sides of the heads of the rails dropped from the placer, and hold them in perfect gauge until they are spiked to the ties. A transverse shaft is journaled on the car frame, to which a pair of brake shoes are eccentrically fixed to press against the laid rails, whereby one man may hold the car at rest until one pair of track rails is run on the

**HERMAN'S TRACK LAYING APPARATUS.**

placer and let down therefrom to the roadbed. Across the front of the car frame is bolted a metal bar from which the main longitudinal frame beams of the rail placer are hung by bolts or clevises, these beams having depending metal brackets or irons on and across which pieces of rails or other fittings may be carried. Two gauge plates hang vertically at each side of the placer head, having in bent head pieces lapping on the head plate, and held thereto by bolt ends formed at the upper ends of the two front and rear parts of the placer legs, which have foot plates adapted to support the placer head on the ties of the roadbed. The gauge plates and legs are separated in pairs at each side of the placer to form two vertical spaces to accommodate one pair of rails and hold them to proper gauge as they fall to the roadbed. By means of tripping rollers, levers, and latch bars, the rails being laid are readily placed with their back ends against the forward ends of the rails last laid, and on which the car rests, while the two pairs of guides direct them to their proper places on the ties and hold them to perfect gauge. For laying rails on curves of the track, the rail placer head may be swung to either the right or left hand as desired.

The same inventor has designed an improved construction of jacks, shown in Fig. 1, to form a platform on which to unload rails from a flat car, to be reloaded on an iron car, to save labor and prevent bending of the rails, the skids used in connection therewith being shown in Fig. 2. These jacks are to be placed in position near each end of a car loaded with rails, the upright standing at the side of the roadbed and being made rigid by a brace made fast to the rail. The skids are then placed in position to make an inclined way down which the rails can readily be moved to the platform, to be thence reloaded upon an iron car, after the car from which they had been drawn out of the way.

Sulphite in Germany.

It is very curious that some of the German sulphite pulps are very high priced at the present moment. We have had several inquiries concerning the cause, and after communicating direct with some of the principal makers in Germany, we learn that the use of first class sulphite, of a very good fiber, is very much on the increase. German paper makers have given up the use of straw pulps almost entirely, and produce most of their papers from a mixture of sulphite and mechanical, the latter giving the filling and bulkiness, while sulphite supplies the fiber. This feature has so developed of late that there is a good sale for strong-fibered sulphite within the vicinity of most of the sulphite mills, and the makers are consequently not so anxious to export; in fact, some of them have now no surplus stock, owing to increased local demand. Those works which have surplus stock get it very often from the fact that German paper makers do not consider the make sufficiently strong, as they rely upon it to take the place of straw pulps and the softer grades of rags. Rags are being used less than ever in Germany, for paper makers find that it pays them very much better to use a good sulphite than go through the process of sorting and cutting rags, which have an inclination to be cheaper, and consequently even known brands are less reliable. This experience agrees with that of English paper-makers. Owing to the changes in textile manufacture, it is seldom that a pure linen or cotton is produced, and occasionally the sizing material used in textile manufacture is extremely injurious, including at times a solution of India rubber and equally objectionable material. It is evidence of common sense this German appreciation of sulphite fiber, especially when it is considered that it can be obtained in the form of half stuff, saving much expense in preparation.—*London Paper Trade Review.*

THE MACHINE GALLERY, PARIS EXHIBITION.

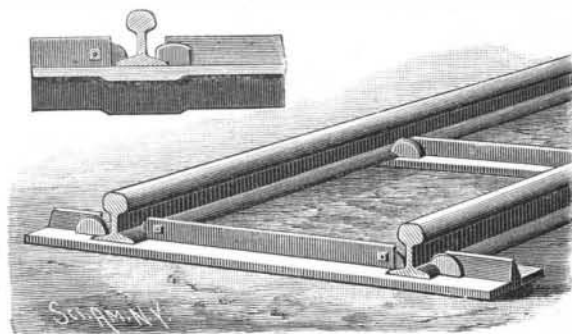
Our illustration gives some idea of the most important building on the Champ de Mars—the great machinery hall—which occupies nearly the whole width of the inclosure, and is parallel to the Ecole Militaire. It is 374 feet span and 1,378 feet long, and the roof is carried by 20 arched ribs jointed at the center and the

**THE MACHINE GALLERY, PARIS EXHIBITION.**

bedplates. Outside these ribs, and running the whole length of the building, on each side, is an aisle with a gallery overhead that will be devoted to the exhibit of light machinery. The covering of this gallery will consist of a series of arches built at right angles to the longitudinal axis of the gallery. From the ridge down to the top of these arches the roof will be filled in with glass, and the covering and side of the aisles will also be glazed, so that the hall will be well illuminated. It is to be feared that the vastness of the building will dwarf its contents; certainly even the largest exhibit will look small compared with the dimensions of the roof.—*Engineering.*

AN IMPROVED METALLIC RAILROAD TIE.

A tie in which the rail can be easily placed or removed, and in which it will be firmly held to prevent spreading or canting, is shown in the accompanying illustration, and has been patented by Mr. Michael Maloney, roadmaster of the Scioto Valley Railway, of Ironton, Ohio. The tie is preferably made of rolled iron or Bessemer steel, and has a cross-shaped cross section, the horizontal flanges being adapted to rest on the track bed, while a downwardly extending flange is embedded in the roadway. In the upwardly extending flange are openings of a size to admit the bases of the rails, and immediately beneath them are offsets on the bottom flange to prevent a sidewise displacement of the tie. The rails are held in place by the heads of bolts passing through the top flange, the heads of the bolts having a straight bottom edge resting on the top of the horizontal flange, and a slightly beveled offset to fit on the top of the base of the rail, the inner face of the head resting against the side of the upper flange, in which position it is firmly held by a nut on the opposite side,

**MALONEY'S RAILROAD TIE.**

while these fastening bolts may be readily removed and replaced.

Metropolitan Telephone Co., New York.

Under the superintendence of Mr. J. A. Seely, the electrician of the Metropolitan Telephone Company, an extremely rapid removal of exchange apparatus was made on Sunday, December 30, 1888, when the company transferred eight hundred subscribers and over nine hundred and fifty wires from the John Street exchange to the new building in Cortlandt Street. The exchange room on the top floor of the fine Cortlandt Street building now has over 1,700 wires in operation, the Nassau Street exchange having been carried in there about November 1, with all its wires. The exchange room contains magnificent switch boards, for complete metallic circuits, built by the Western Electric Company, allowing of the operation of 5,000 subscribers' wires, and concentrating also Pearl, New, Beaver, and Fulton Streets exchanges, and distributing underground, and connecting by the trunk wires in the conduits with all the uptown exchanges. Mr. E. S. Sherwood, Superintendent of Exchanges, has this work in hand, assisted by Mr. Seely.