

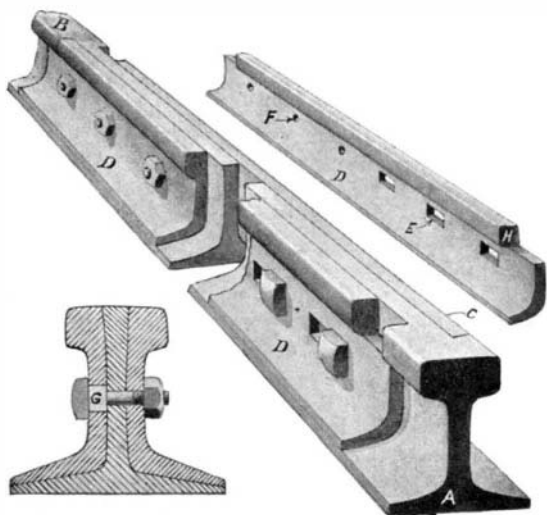


A Trick With the Telephone.

It is not generally known to users of the telephone,—and perhaps it is just as well for the interests of the service—that when the ear-piece of a receiver is held to the mouth-piece of the transmitter a more or less shrill tone or whistle is heard in the receiver. This occurs when the apparatus is in good working condition and when the transmitter is on short circuit. This effect is seemingly due to a series of reactions analogous to, but much more complex than, those which occur in an electric bell when its circuit is closed. A movement of the diaphragm of the receiver toward its magnet tends to weaken the pressure on the carbon of the transmitter, which causes a weakening of the current, allowing the diaphragm to fall away, with the further result that the air column is compressed, increasing the pressure on the carbon again, and also increasing current strength, whereby the diaphragm is again attracted, and this action is repeated over and over again. Recent investigation of these phenomena indicates, as might be anticipated, that it is dependent upon the fundamental rate of vibration of the receiver and transmitter, the length of the air column inclosed between them, and also the oscillation period of the circuit. The above references to the attraction of the diaphragm and to its falling away are, perhaps, rather broad terms, when it is considered that as near as can be calculated the amplitude of vibration of the diaphragm of the receiver in reproducing speech is about the one twenty-millionth of an inch.—Cassier's Magazine.

IMPROVED RAIL JOINT.

To securely connect together the rails of a railway, and at the same time allow sufficient freedom for expansion and contraction under variations of temperature, is no small problem, as proved by the numbers of patents on rail-joints which are being continually granted to inventors. Mr. Paul Jason Lukes, of Balls Ferry, Cal., has offered a good solution of the difficulty in a recent invention. His invention, in addition to fulfilling the above-mentioned requirements, provides a continuous-tread surface for the car wheel, thereby preventing wear and pounding at the joints. Our illustration shows two rails, A and B, joined together by Mr. Lukes' improved connection. It will be observed that the ball of each rail is cut away at the sides for a short section adjacent to the ends of the rail, leaving only the center web along the tread of the rail. The rails are connected by fish-plates C and D, which are formed to fit snugly against the sides of the rails. The fish-plates are formed with tread surfaces adapted to fit into the cut-out portions of the rail treads. The fish-plate C is secured by bolts to rail A and fish-plate D is similarly fastened to the rail B. At one end the fishplates are provided with slots E and at the other end boltholes are formed. The bolts which fasten the plates to the rails are provided with squared portions, G, adapted to fit into the

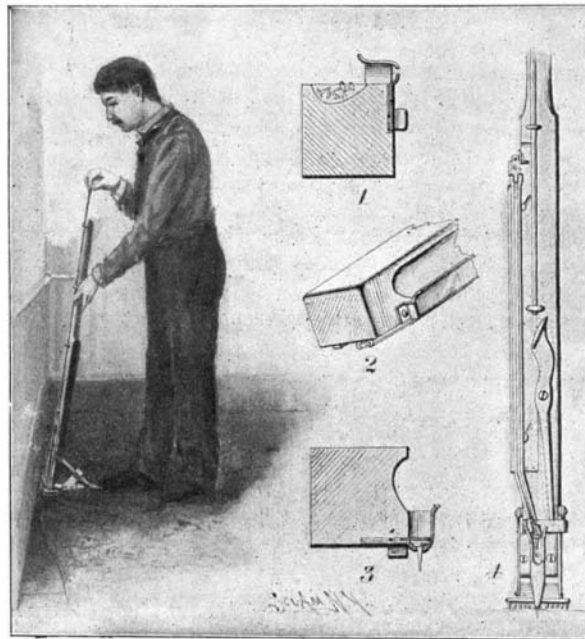


RAIL JOINT WITH CONTINUOUS-TREAD SURFACE.

slots of one of the fish-plates, while the main shanks extend through the rail web and the fish-plate on the opposite side, where they are secured by nuts. In this way the fish-plate securely fastened to one rail has a sliding connection with the other, and vice versa. The treads of the fish-plates are cut away at H so as not to interfere with the longitudinal movement of the rails. The tread at the joint, however, is practically continuous, for there is always at least two-thirds of the tread surface for the car wheels to run on.

COMBINED CARPET STRETCHER AND TACKER.

We illustrate herewith a device which will be found very useful in the household. It is the invention of Mr. J. W. Quilling, of Ursa, Ill., and consists of a carpet stretcher provided with a reservoir for carpet tacks and means for feeding them singly to the carpet and driving them in. The advantages of such a device will be apparent to all who have ever laid carpets. Our illustrations show several detail views of the invention, which will enable our readers to understand its construction. It comprises a long hand-lever pivotally



A COMBINED CARPET STRETCHER AND TACKER.

connected with a foot-piece at its lower end. The foot-piece is provided with teeth adapted to engage the carpet, and is also notched at its forward end. A hammer rod is held in guides on the hand lever, and is adapted to drive the tacks as they are fed into a toe-piece which projects into the notch of the foot-piece. The tack reservoir consists of a guideway which holds the heads of the tacks, their points being allowed to project outward through a slot. They are prevented from dropping into the toe-piece by a slide which closes the lower end of the guideway. The guideway is opened automatically by means of a lever which is moved on operating the hammer rod. This permits a single tack to fall down into the toe-piece, the head striking a lug which causes it to turn point downward. A spring on the toe-piece prevents it from passing through until forced down by the hammer. The tack reservoir may be loaded by inserting the tacks singly at the upper end. A more rapid method is as follows: On the side of the hand lever, just back of the guideway, as shown in our detail views, is a trough. The hand lever is held horizontally, and the tacks are put into this trough. The device is then turned on its side, as shown in Fig. 2, whereupon the tacks slide into the guideway, point downward. They are then secured by a plate which slides in behind the tack heads. This plate may be seen in Fig. 4, secured to the main lever by screws passing through diagonal slots. A spring catch holds this slide in place. The carpet stretcher may be used in the usual manner, and the tacks driven in while holding the carpet stretched. The foot-piece can be folded up against the hand lever when the device is not in use, a catch being provided for holding it in this position.

New Law of Importance to Owners of Canadian Patents.

A very important amendment has been made in the Canadian Patent Act, which relieves the unsatisfactory situation which was occasioned by the recent decision of the Canadian Supreme Court, which held that the Canadian Commissioner of Patents is authorized to grant only one extension of manufacturing time, and that the provisions for the manufacture of the invention in Canada should be strictly complied with. The new law makes it optional with a Canadian patentee either to comply with the manufacturing provisions of the Canadian Patent Act, which requires the patent to be worked in that country within two years, or to file a petition requesting that the Canadian Commissioner of Patents order that the patent be subject to the compulsory license provisions of the amended law, in lieu of a compliance with the manufacturing provisions.

Where patents are subject to the compulsory license law, it will be unnecessary for the patentee to commence the Canadian manufacture within any stated period; but should another person show that the Canadian manufacture is not sufficient to supply the Canadian demands, and should such person apply for a compulsory license, the license will have to be granted for a consideration, which will be determined

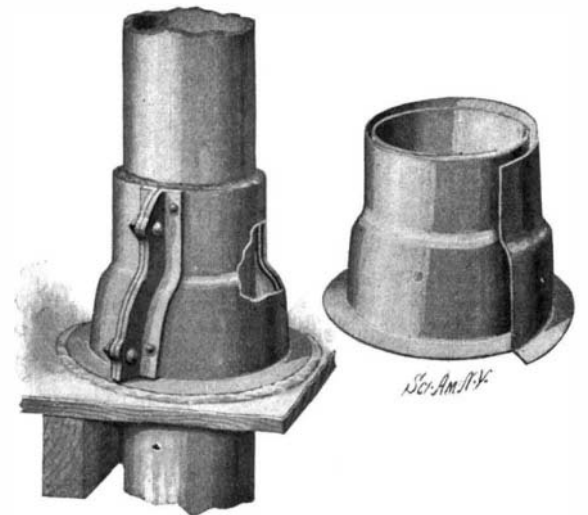
by assessors appointed by the Commissioner of Patents. In cases where the patentee has filed the petition and he finds it convenient to commence the Canadian manufacture at an early date, he will not be obliged to grant licenses, for an applicant for a license will be unable to show that the Canadian demands remain unsatisfied; and it will only be in cases where the patentee, for some reason or other, has not commenced the Canadian manufacture, that he may be called on to grant a license. When a license is ordered to be granted, the patentee will receive a valuable consideration, and as the licensee will not compete with any business which the patentee has commenced, it would in any case be to his interest to grant the license. The license laws, therefore, will do much to enable patentees to introduce their inventions, by bringing patentees and possible licensees together, and the value of Canadian patents which are subject to the license law will be greatly increased.

Canadian patents which were void under the old law by reason of the failure of the patentee to manufacture the patented goods in Canada before the expiration of the first two years of the term of the Canadian patent, or within a single extension of manufacturing time, may be revived, provided the patentee before February 13, 1904, either commences the bona fide manufacture of the invention in Canada or files his petition requesting that the patent be subject to the license law. Every holder of a Canadian patent on an invention, which is not being manufactured in Canada, should therefore at once petition the Commissioner of Patents, in order to avoid being compelled to manufacture before any stated period. The holders of Canadian patents which may be hereafter issued have six months after the grant of the patent in which to file the petition.

The Canadian Patent Act is also amended so that a Canadian patent will not expire because of the expiration of a previously granted patent in another country. The amendment also contains provisions which save the rights of third persons whose rights may have been obtained under decisions construing the old law, and of persons who have commenced the manufacture of the invention in Canada between the date when a patent would have been held to have expired under the old law and the date when the new law went into effect.

FASTENING DEVICE FOR VENT PIPES.

A new form of fastening device for vent pipes has been invented by Mr. John J. Meyer, of 23 East 135th Street, New York city. The device possesses the advantage of being effective and reliable in use, and at the same time of being comparatively inexpensive to manufacture. It can be very easily applied and removed, and when applied will insure a perfect air and water-tight joint, capable of withstanding thermal changes and inclement conditions. The device is made preferably of sheet zinc, consisting of a band of the metal adapted to be coiled snugly about the vent pipe. As usually made it is formed with a straight upper portion to fit the sides of the pipe, and a flaring base portion setting out some distance from the sides of the pipe. In order to secure the device to the pipe, an angle piece is riveted to the outer end of the sheet metal coil. A similar angle piece is secured to the



FASTENING DEVICE FOR VENT PIPES.

coil in such position that when the coil is tightly wound around the pipe, the two angle pieces will nearly meet and can be drawn firmly together by means of bolts. The lower edge of the coil is preferably provided with a flange, which establishes a firmer seating of the device in place, and facilitates the application of solder to secure it to the metal covering of the roof. Previous to clamping the device onto the pipe, cement is poured in between the coils, and then after the parts are tightly drawn together, a most secure and stable support for the structure will be had.