tailstock spindle T carries a centre D of similar design to the tapered recess on the front side of the carriage. When not in use the drill is back in the drill clearance hole. The work W to be centred is placed between the tapered recesses, and by working the tailstock spindle forward, the work is forced on the drill, which drills a centre hoie, truely concentric with the work.—Shop Kinks, by R. Grimshaw.

Handy Eccentric Vise.

A handy eccentric vise for holding narrow flanged pieces that are to be faced on two sides, is shown in the accompanying illus-

System in Railway Track Work.

By A. M. Clough, Supervisor, New York Central and Hudson River Railroad.

It is just as essential to have proper organization of men in doing track work as it is in many of the departments of an army. The fact that a body of men when dressed alike and when moving in harmony give an added effect to their movement can be worked in several instances in laying rail, or handling ballast, etc., and men can be taught to work with as much regularity and precision as a body of military men on duty. Take, for instance, in laying rail: The men pulling spikes, 8 or 10 of them, can be

taught to pull every eighth or tenth spike,

troublesome and harder to handle than poor cinder or gravel ballasted track. Weeds will grow and it is impossible to cut them, moisture will cause ties to decay and track to heave in winter and instead of having a clean, bright looking track it will look worse than poor cinder or gravel ballast. A light lift, of from 1½ to 2 ins., should

A light lift, of from 1½ to 2 ins., should be made if possible, but before anything else is done the stone and dirt from between the ties, for their full length, should be removed to nearly the depth of the tie. This should be put outside on the shoulder.



tration. The pieces for which the vise was originally made were narrow arched members, with flanges at either end, on which the clamping jaws set, the far and near sides of which were to be finished. It was a job that would ordinarily be done on a milling machine, but as all the milling machines were in use the vise was clamped to the



Handy Eccentric Vise.

carriage of a lathe, and side cutters mounted on an arbor between lathe centres, with the vise containing the work fed across the carriage. It could be used in a variety of ways, and for flanged pipe work, should be most useful in the lathe, planer, boring mill or milling machine. With the clamping eccentrics a positive grip on the flanges of the pieces to be held can be secured. The base of the vise is made in two parts, with the mating surfaces on an incline, to allow for vertical adjustment of the work with regard to the tool.—Shop Kinks, by R. Grimshaw. Efficiency methods. Rail laying from the outcide.

each pulling their own without the confusion of a poorly organized gang that goes at it haphazard and moves past each other in any old way. The same is true in lifting a rail. Twelve or more men will move forward with clocklike regularity when taught to do so, instead of dragging along hap-hazard. All the others, wrenchers, spikers, those throwing out the old rail, etc., each is found in his place and knows how to keep In fact, it can be worked down to a system that can be outlined or illustrated, as in the accompanying diagrams, and anyone who has never tried it will be surprised at the results when compared with less specific methods.

Another thing very necessary in order to obtain the full benefit, is the foreman's selection of men to fill the different places. Many a man makes a good wrencher who is not as good either in pulling spikes or on the tongs. In the diagrams, the placing of men is based on long experience and study and will not cost anything to be tried by those who heretofore have not worked to a set system.

Cleaning Stone Ballast and Keeping it Clean.—This plan should interest every trackman who has charge of stone ballasted track and instead of making it a secondary consideration, sometimes considered a waste of money, it should be considered paramount. Whenever a foot of track is to be repaired, where dirty stone ballast exists, the dirty stone should be removed and when replaced it should be put back with the ballast forks or be cleaned with some other devices made for the purpose.

Stone ballasted track, if permitted to get foul with sparks, cinders or other foreign matter, will become in a short time more There will still be some sparks and cinders in the ballast left in the track, but this should be loosened up with picks to permit what is left to go down as deep among the stone as possible. A light lift should then be made and any tie renewed that needs to be without disturbing the old bed of the tie taken out. Then tamp up the track with clean stone forked in from the shoulder, loosen up the shoulder with picks and fork over the stone, shovelling out the dirt. Make the shoulder standard with what has been shovelled out and if there is any stone needed to finish the standard dressing, this should be unloaded in the centre of the track from ballast cars. Then you will have track that will look like new ballasted track and will ride smooth and elastic. It will also be good for two years under the heaviest kind of traffic and longer where it is lighter.

When simply cleaning the stone, screens can be used that will throw the stone back where it was shovelled out from, but where track is being given a light lift and ties renewed it is necessary to put the stone outside and then it can be forked back in more economically and just as cleanly as screening it.—Maintenance of Way Bulletin.

Railway Rates in Australia. It is stated that on the New South Wales Government Railway an increase has been made recently in passenger fares ranging from 6% on through fares to 14, 25 and 50% on different kinds and classes or reduced excursion fares. An increase of 10% has been made in freight rates also. The advances are for the purpose of enabling the railways to meet the very considerable increase in operating expenses.

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